The Resonator

Official Newsletter of The Fair Lawn (NJ) Amateur Radio Club

Volume 5, Number 2 **www.FairLawnARC.org** **February 2020**

From The President:

We are off to a great year. Even though Murphy showed up and didn't allow us to enjoy Winter Field Day out in the Park, our Club opened its doors and some FLARC members came and operated both days, allowing W2NPT to be on the air for the event. Thanks to all that came and operated WFD.

We also started our "coffee talks" on Fridays at the club. Our appreciation to our Past President Brad, KM2C who, during the month of January, offered training on operating the Flex 6400 & 6400M. This is a great help for all those wishing to enjoy operating at positions 1 and 4. This month we'll have Larry, WA2ALY giving a talk on ground radial systems and Fred, W2AAB talking about the "Top Band" or "Gentleman's Band," 160 Meters. Remember, if you have a topic that would be of interest for members of the club, let me know and we'll schedule you for "coffee talk" throughout the upcoming months.

Mark your calendars for February 21st where Ed, WX2R will present the results of the 2020 FLARC Member Survey. Here we'll learn what our members expect from the club. Remember, we do this because your opinion counts and we want to serve you, our members in a way that you will feel proud of FLARC. **We will have this presentation at the Fair Lawn Senior Center.**

We want you to get involved in our upcoming events. Stay tuned to all the activities coming up for the club. Remember, Punxsutawney Phil didn't see his shadow last weekend, therefore spring is coming sooner, which means more time outdoors to enjoy ham radio. I'll be seeing you at the club.

73,
Nomar, NP4H
FLARC President

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Member Profile

NAME: **Chris Lanski** CALL**: KD2JQZ**

What do you do/what did you do for a living?

I'm a VP of Information Technologies for a database marketing company. In that role, I'm active on software development, database, on premises and cloud computing / networking and compliance for some of our hospital clients.

How did you get interested in ham radio?

When I was very young, I had toy "walkie talkies" and thought it was the coolest thing. In the 70s the CB became a big thing. I had to have one and bought my first CB from Alexanders in Paramus. It was by a company named Bowman and I think I paid 30 bucks at the time. After making spaghetti of the wiring in my dad's car and a little tin foil wrapped around a fuse, I was on the air.

A few years back I was talking about CB to a coworker, KD2AHK. He told me about amateur radio. Prior to that, the idea had never entered my mind. I got my general license, an HF at home, a VHF in the car and I've been silent ever since…

What parts of the hobby most interest you?

I've always been a "gadget" person and in this hobby the possibilities are endless. Whether it's something to analyze an antenna or something to launch a rope over a tree, amateur radio does not disappoint.

Continued on page 5.

The Club Fair Lawn ARC is the fastest growing ham club around, with five operating positions in a permanent clubhouse. Visitors and guests are always welcome. The club is open every Friday night from NLT 6:30 PM. Business meetings are the first Friday of the month at 7:30PM.

2020 Officers, Committees and Assignments

President	**Nomar Vizcarrando**	**NP4H**
Vice President	**John L. Howard**	**W2JLH**
Treasurer	**Al Rasmussen**	**WA2OWL**
Secretary	**Randy Smith**	**WU2S**
Trustee	**Skip Barker**	**KD2BRV**
Trustee	**Ed Efchak**	**WX2R**
Trustee	**Don Cassarini**	**N2PRT**
Field Day	**Steve Wraga**	**WA2BYX**
Member Services	**Judith Shaw**	**KC2LTM**
Publicity	**Ed Efchak**	**WX2R**
Publicity	**Gene Ottenheimer**	**WO2W**
Publicity	**Susan Frank**	**W6SKT**
Program	**Lowell Vant Slot**	**W2DLT**
Publicity	**Karl Frank**	**W2KBF**
Publicity	**Nomar Vizcarrando** ***(ex officio)***	**NP4H**
Social Media	**Dave Marotti**	**NK2Q**
Video/YouTube	**Thom Guida**	**W2NZ**
VE Liaison	**Gene Ottenheimer**	**WO2W**
VE Liaison	**Pete Senesi**	**KD2BMX**
Education	**Gordon Beattie**	**W2TTT**
Education	**Randy Smith**	**WU2S**
Education	**John L. Howard**	**K2JLH**
Education	**Fred Wawra**	**W2ABE**
History	**Fred Belghaus**	**W2AAB**
Health and Welfare	**Judith Shaw**	**KC2LTM**
Photographer	**Don Cassarini**	**N2PRT**
W2NPT Trustee	**Paul Cornett**	**W2IP**
Technical	**Paul Cornett**	**W2IP**
Technical	**Randy Smith**	**WU2S**
Technical	**Fred Wawra**	**W2ABE**
RACES Director	**Dave Gotlib**	**KD2MOB**
RACES Liaison	**Steve Wraga**	**WA2BYX**
Newsletter Editor	**Ed Efchak**	**WX2R**
FL Town Liaison	**Gene Ottenheimer**	**WO2W**
Net Scheduler	**Brian Cirulnick**	**KD2KLN**
Quartermaster	**Brian Cirulnick**	**KD2KLN**

Fair Lawn RACES/ARES Corner

The FL-ARES members are preparing for emergency communications whenever necessary. Of course, this takes training and experience from our membership which currently numbers more than a dozen. We are fortunate to make Fair Lawn and the surrounding communities our home. With our leadership and support from the FLARC we can grow and be of assistance in many community events.

The FL-ARES KB2FLA Net takes place every Wednesday at 1900 hours on the FLARC Repeater. However, one Net per month is replaced with a video learning session provided by Randy WU2S. This month, we may have a video session on the 3rd Wednesday - February 19th, in place of the FL-ARES Net. Details regarding the video session will be provided in an upcoming email to our membership. Please join us every Wednesday for any updates, messages or activities which may take place. FL-ARES would like to thank the FLARC for the use of its repeater.

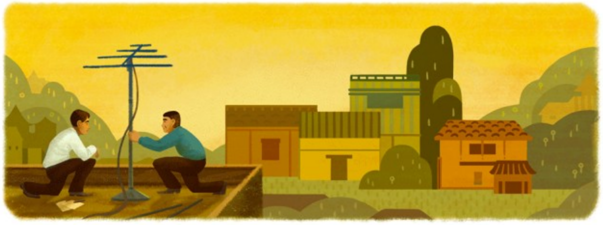
Our weekly KB2FLA nets have become more than just communication nets. One Wednesday per month (usually the 3rd Wednesday) Randy WU2S hosts a video net demonstration which covers various types of communication operations. Randy WU2S is an educator and has a wealth of knowledge we can all learn from.

We will be assisting FL-CERT with various events going forward. There will be a 5K run at the FLJC on Sunday, March 1st beginning at 9:30 AM. There may be 5K Run at the Radburn School which will be taking place in the spring. More details will follow in March.

Continued on page.

MASTER EVENT CALENDAR

February 21, 2020	**Ed Efchak WX2R "The 2020 FLARC Member Survey" – Senior Center**
March 20, 2020	**Wayne Smith WB2ONZ "The Civil Air Patrol: A Contemporary View"—Senior Center**
April 17, 2020	**Rich Moseson W2VU "75 Years of CQ Magazine" – Senior Center**
April 18, 2020	**World Radio Day Operating Event (tentative)**
April 22, 2020	**Special Event Station At Great Falls With National Park Service**
May 15, 2020	**Hal Kennedy N4GG "Spark At FLARC" Via Skype – Senior Center**
June 14, 2020	**Fair Lawn Spring Street Fair (Radburn)**
June 27-28, 2020	**ARRL FIELD DAY – Memorial Park**
July 17, 2020	**Neil D Goldstein W2NDG "Raspberry Pi And Digital Operating"—Senior Center**
August 21, 2020	**FLARC 3rd Annual Vintage Night – Senior Center**
September 18, 2020	**Lowell Van't Slot W2DLT "Working the CQWW SSB Contest At A Caribbean Superstation" – Senior Center**
October 18, 2020	**Fair Lawn Fall Street Fair (River Road)**
TBD	**Return Visit To iHeartRadio/WSUS transmitter**
TBD	**Field Trip to Sarnoff Center, Princeton**
	**** 2nd Friday of month**



Hidetsugu Yagi's 130th Birthday Google Doodle

Follow FLARC ON THE WEB

Facebook:	**http://facebook.FairLawnARC.org**
Twitter:	**@FairLawnARC**
Blog:	**http://blog.FairLawnARC.org**
Youtube:	**http://youtube.FairLawnARC.org**
Website:	**http://FairLawnARC.org**

FLARC VEC Exams

Our next test sessions are scheduled for **Saturday, February 8th** beginning at 09:00 at the Community Center. No advanced registration is required but always appreciated. The fee is $15.00 (cash or check).

Please bring positive identification (license, passport, etc.), your original license and a copy, original CSCE and a copy (if credit is needed).

The full exam schedule is on the club calendar at the FairLawnARC.org website. For further information contact VE-Liason@FairLawnARC.org.

Please refer also to the "License Exams" link
on the main website--

http://bit.ly/FLARC-Testing

We appreciate your support of the Fair Lawn Amateur Radio Club!

This is your Club! Be part of it!

Interested in Chasing DX?

A casual group of FLARCers including Van W2DLT, John KD2NRS, Brad KM2C, Karl W2KBF, Nomar NP4H, Steve WI2W, Jim W2JC, Larry WA2ALY and Fred W2AAB have formed an email group to keep each other in touch in (real) time of when the rare or interesting ones show up to chase.

Interested? See or contact Van W2DLT.

Answer The Census!

Coming in late March you'll be required by law to complete your US Census form. The club is an active sponsor of Fair Lawn's Complete Count 2020 initiative, so your support is important.

Equipment Problem?

If you encounter a piece of club equipment, instrument or tool that is not working correctly or is broken in any way, we now have a Trouble Report form that you can use to describe the problem and report it to the Technical Committee -- who will arrange for repair.

The form can be found on the literature rack across from Position 2.

2020 -- The Year of Learning!

Brad KM2C talks through the Flex equipment on January 10th

Please Note: Operating at W2NPT

Starting in January 2019 club trustees have sign-in sheets for all operating positions. There is a clipboard at Operating Position #1, #2 (digital) and #4 with a form on which to sign up for half-hour time slots. No longer first come-first served, in fairness to all who want to use our club equipment and the new antennas.

Get Direct With FLARC!

Here is a direct link to specific club info: just a click away!

http://apparel.FairLawnARC.org
http://auction.FairLawnARC.org
http://blog.FairLawnARC.org
http://calendar.FairLawnARC.org
http://events.FairLawnARC.org
http://exams.FairLawnARC.org
http://facebook.FairLawnARC.org
http://news.FairLawnARC.org
http://swap.FairLawnARC.org
http://tech.FairLawnARC.org
http://youtube.FairLawnARC.org

NEW !

https://groups.io/g/FairLawnARC

January 2020 Blog Traffic

January opened the year a bit under that of 2019. Posts as well as traffic were down.

	January 2020	January 2019	Change
Views	428	453	-6%
Visitors	127	175	-27%
Posts	7	13	-46%

There is new content nearly every day so it's really worth the look at both FairLawnARC.org and the blog.

http://blog.FairLawnARC.org

Member Profile, continued

I depend a lot on the members for their technical knowledge, but I like setting things up and learning as time permits. Recently, with the help of Tony N2SIQ, I was able to get a 160m OCF built that has been performing very well. My talk interests are in DXing but I'm not knowledgeable enough to do it effectively. Contesting is interesting too.

What does belonging to FLARC mean to you?
How do you/can you better contribute to the club?

Being a member of FLARC means that I have access to members having a significant pool of knowledge who are willing to share their knowledge and experience to help me. I have enjoyed several field trips as well and used it as an opportunity to spark an interest in a friend who was recently licensed – KD2STA.

As far as contributing the club, I have to say that for now the club gives to me and I don't know enough to be much of a contributor.

What should be the club's priorities
in the next year?

In general, I think any club's priorities should be to support the interests of its members.

Growing membership by raising awareness to the activities and interests supported by the club is also a good thing. There are so many areas of this hobby and FLARC is good at promoting the individual interests of a very well-rounded group. From the bench, to the car and the shack to field trip activities, I have found FLARC to be supportive.

FAIR LAWN
N J
AMATEUR RADIO CLUB

Club Apparel —
Get Them While They're RED!

Club apparel is always in vogue. Red is always "in" and your club friends all have them... you *want* a shirt or jacket for the next FLARC event!

Don't forget.... they're easy to order.
Go to www.hamthreads.com
or visit http://apparel.FairLawnARC.org

Check out the item selection that is posted on the FLARC website (with pictures and prices). Order the shirts or other items you want with either the regular FLARC logo or the still-cool 60th anniversary logo. Note: **RED** is the primary and preferred club standard shirt color**.**

Steve WA2BYX shows off his spiffy FLARC shirt at the clubhouse

2019 FLARC Speaker Series Locations:

SPEAKERS WHO ARE FLARC MEMBERS:
FLARC CLUBHOUSE

SPEAKERS WHO ARE INVITED GUESTS:
FAIR LAWN SENIOR CENTER

Winter Field Day Goes Indoors

Due to the ugly weather forecast for Saturday January 25th (1.5 in. of rain in half an hour) we opted to operate from our club station and use the weekend for education and training in contesting and operating our new FLEX 6400s for our members -- rather than for a torture weekend! From that aspect, it was a roaring success.

The final score was 106 CW QSO's, 156 on phone with five multipliers for a score of 3,680. Lots of fun and take-down was a breeze.

See pix and more details elsewhere in this issue.

BEQUEATHS AND DONATIONS

Planned gifts usually imply the family donation of amateur equipment to the club when someone has become a Silent Key. But it can be more. Club members might consider making a gift through a will or trust; gifts that help provide lifetime income to the club. Consult with your lawyer, estate planner or tax advisor if you feel such as gift is worthy.

About The Club

The Resonator is published monthly and is the official (and only) newsletter of The Fair Lawn Amateur Radio Club. FLARC was established in 1956 and has met continuously since inception. **The club is sponsored by the Borough of Fair Lawn.** The club meets every Friday at 6PM at the club station in The Fair Lawn Community Center, 10-10 20th Street, Fair Lawn, NJ. Business meetings are the first Friday of the month at 7:30 PM.

Visitors ARE ALWAYS welcome at our meetings.

FLARC operates the W2NPT repeater (145.470- PL **167.9**) located high atop the Community Center. The analog repeater is open to all amateurs for use without restrictions.

The club has over one hundred paid members.
Dues are currently $25 per year/$20 for new members.

For more information, please see our website, at
http://membership.FairLawnARC.org

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"POP-UP TUESDAYS" HAVE ARRIVED!

The club will be open – *but not every Tuesday* – from 6:30 – 9:00. Check the club calendar and your email each week for the current schedule.

The February 21st Member Survey Presentation Is At The Senior Center Please Note The Location!!

FAIR LAWN'S COMMUNICATIONS CENTER!

With New Antennas On The Roof!

2020 *Near and Far Net* Check-In's

Now in its third year, the FLARC *Near and Far* net is chugging along each week. Here is list of our check-ins beginning on New Year's Night in no particular order. Mondays at 8PM on the repeater.

Call	Name
N2AAM	**Dave**
WO2W	**Gene**
W2DLT	**Van**
KD2MOB	**Dave**
W2JC	**Jim**
WI2W	**Steve**
N2SU	**Bob**
N2OEL	**Noel**
WX2R	**Ed**
W2AAB	**Fred**
KD2KLN	**Brian**
W2MSA	**Noel**
W2KBF	**Karl**
AC2ZU	**Charlie**
W3EH	**George**
KC2TBD	**Ron**
TG9AOR	**Joe**
You??	

Pete KD2BMX, our VE Coordinator reports that we have a new member of the FLARC VEC Group, Bill Stagg --KC2BLN. Just five years ago we had difficulty ensuring that we would have three VE's show up to administer the Exams. Now we have 15 members that participate.

What a club!!

2019-20 Member Profiles

The year is now complete and here is a list of the 2019 monthly profiles. See past profiles elsewhere in *The Resonator* to check back in the archives to see each featured member's background.

Month	Name	Call Sign
January 2019	**Dave**	**KD2JIP**
February	**Jim**	**K2ZO**
March	**Zach**	**KC2RSS**
April	**Bob**	**N2SU**
May	**Stan**	**KC2K**
June	**Steve**	**WA2BYX**
July	**Roger**	**K2RRB**
August	**Judith**	**KC2LTM**
September	**Chris**	**W2TU**
October	**Bob**	**N2SU**
November	**Bob**	**WA2ISE**
December	**Carol**	**KD2NMV**
January 2020	**Gordon**	**W2TTT**
February	**Chris**	**KD2JQZ**

Congratulations!

The January 11th VE testing session may have set an all time record of passes at FLARC. Pete KD2BMX reports the following test session results:

Name	Call	New License
Andras Mikite	KD2TIA	Technician
Jonathan Glatzer	KD2RRK	General
Jacob Friedman	KD2RRL	General
Jeffrey Sanchez	KD2TIB	Technician
Michael Paitchell	KD2TIC	Technician
Mark Fetcher	KD2TID	Technician
Christopher Rios	KD2TIE	Technician
Matt McGeehan	KD2TIF	Technician
Timothy Kriss	KD2TIG	Technician

Past FLARC Member Profiles

Here is a list of past member features and we welcome your recommendations for new profiles -- including your own.

Month	Name	Call Sign
January 2016	**Pete**	**KB2BMX**
February	**Marco**	**KC2ZMA**
March	**Ron**	**KC2TBD**
April	**Kai**	**K2TRW**
May	**Larry**	**WA2ALY**
June	**Dave**	**N8MAR**
July	**Steve**	**WI2W**
August	**Thom**	**W2NZ**
September	**Brian**	**KD2KLN**
October	**Brad**	**KM2C**
November	**Al**	**WA2OWL**
December	**George**	**W3EH**
January 2017	**Fred**	**W2ABE**
February	**Dave**	**KD2MOB**
March	**Randy**	**WU2S**
April	**Lee**	**KD2DRS**
May	**Gene**	**WO2W**
June	**Carol**	**KD2NMV**
July	**Kevin**	**KC2KCC**
August	**Robert**	**KD2NOG**
September	**Robert**	**KD2BKD**
October	**John**	**KD2NRS**
November	**Fred**	**W2AAB**
December	**Margaret**	**W2GB**
January 2018	**Brian**	**KD2OAZ**
February	**Bennett**	**KO2OK**
March	**Van**	**W2DLT**
April	**Aly**	**AL0Y**
May	**Bruce**	**NJ2BK**
June	**Dave**	**N2AAM**
July	**Karl and Susan**	**W2KBF and W2SKT**
August	**Steve**	**KA2YRA**
September	**Paul**	**K2PJC**
October	**Skip**	**KD2BRV**
November	**Ed**	**WX2R**
December	**Tom**	**N2AAX**

By the way, Randy (WU2S) has compiled a binder of all back issues of *The Resonator* and it's located in the club office. Thanks Randy!!!

Back issues are also available on our website.
http://newsletters.FairLawnARC.org

FLARC Coffee Pot (SK)

After an estimated 25+ years and 6,000+/- cups served, the club coffee pot passed away on Friday December 13th with family and friends at its tableside. It went peacefully with just a few last valiant attempts at a final perk and then it was gone. It was decided that it was grounds for separation.

Old Faithful

Luckily a replacement was brewing. Happily we can report the arrival of our newest addition to the FLARC family—CP2. Note the improvements in coffee brewing technology!!.

New Faithful

Member Profile (Continued)

What else can you tell the club about yourself and/or ham radio?

I grew up in Ridgewood and have lived in Bergen County my entire life. Currently, I'm in Washington Township. I have two children.

What other ham related clubs or organizations do you belong to?

BARA

Chris KD2KQZ

At All-Time High

Last year's October issue of The Resonator noted that the club had reached a total of 145 members. At year end, Al WA2OWL reported the final member count at 167; an approximate 10% increase.

167!!

PAY YOUR DUES NOW!

Renewals are due – Let's help keep that number for 2020.

February 2020 Near and Far Net Controls

Here is the roster for net controls for the upcoming month as reported by Brian KD2KLN:

Date	Net Control
February 3	**Nomar NP4H**
February 10	**Karl W2KBF**
February 17	**Jim N2JLF**
February 24	**David KD2MOB**

The Near and Far Net now averages close to 20 check-ins on an average week! Cool beans.

But we need more volunteers to be net controls --
if everyone takes their turn it's less burden on the others. And it's easy. Volunteer --- don't wait to be asked (unless you really want to be flattered).

Looking To Upgrade Your License? Here Are Some Classes To Help!

Here is the summary of classes offered by our friends at the ARC^2 Radio Club during 2020.

Technician License Radio Class
February 22, Saturday, 8 am to 4 pm
February 23, Sunday, 9 am to 3 pm

Amateur Extra License Radio Class
June 6, Saturday, 9 am to 4 pm
June 7, Sunday, 9 am to 3 pm

General License Radio Class
September 19, Saturday, 8 am to 4:30 pm
September 20, Sunday, 8:30 am to 3 pm

Technician License Radio Class
November 21, Saturday, 8 am to 4 pm
November 22, Sunday, 9 am to 3 pm

Location:
Fairfield Red Cross Office
209 Fairfield Road, Fairfield, NJ 07004

Instructor: Bill Kelly
NB1LL.ARC2@gmail.com
201.615.8132

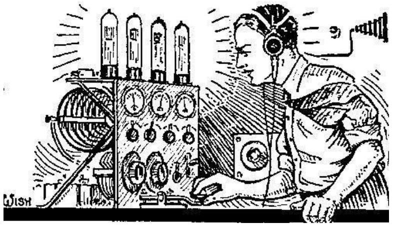


Image from May, 1926 QST, courtesy ARRL

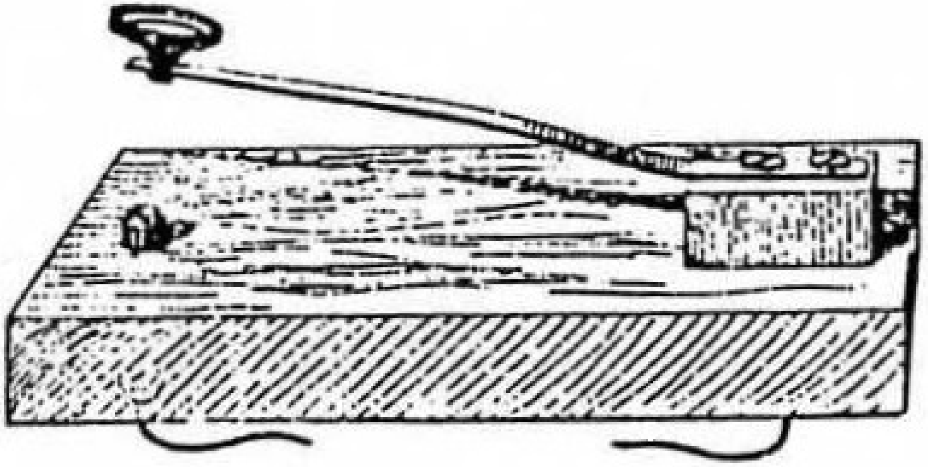
The Way We Were --

By Fred Belghaus W2AAB

Straight Key Night: A Sentimental Journey

To those of us who once held the Novice Class license, every day was "Straight Key Night." That is, until we became so skilled at using a straight key that we graduated to a bug or electronic keyer. Those that didn't stay with CW either got a General or higher license and operated mainly HF phone, became licensed as Technician Class and operated mainly VHF phone, or dropped out of ham radio entirely.

My very first key was homemade. I made it out of these materials: a piece of wood, a half inch wide strip of steel bent at one end, and screwed down to one end of the wooden base with a wood screw. For a knob, I secured a wooden drawer pull to the opposite end of the metal strip with a machine screw. I added one more wood screw to the wooden base under the knob end of the metal strip. Wires were attached to each screw, and connected to a small door buzzer using a dry cell battery for power. The key looked something like this, which happens to be the first telegraph key ever made by Alfred Vail in 1844, the *real* inventor of the electric telegraph:



VAIL'S ORIGINAL FINGER KEY OF 1844.
(IN THE CABINET OF THE WESTERN UNION TELEGRAPH CO.)

Image: http://www.morsemad.com/vail.htm

From that most humble of beginnings, I learned the international "Morse" code in one week, got my code speed up to more than five words per minute within ten days, and easily passed the Novice license exam. The year was 1962. I was fourteen years old.

The Way We Were

The first commercially made key was known as the "Vail Lever Correspondent," which Vail developed at his father's Speedwell Iron Works in Morristown, New Jersey. Here's what one looked like:

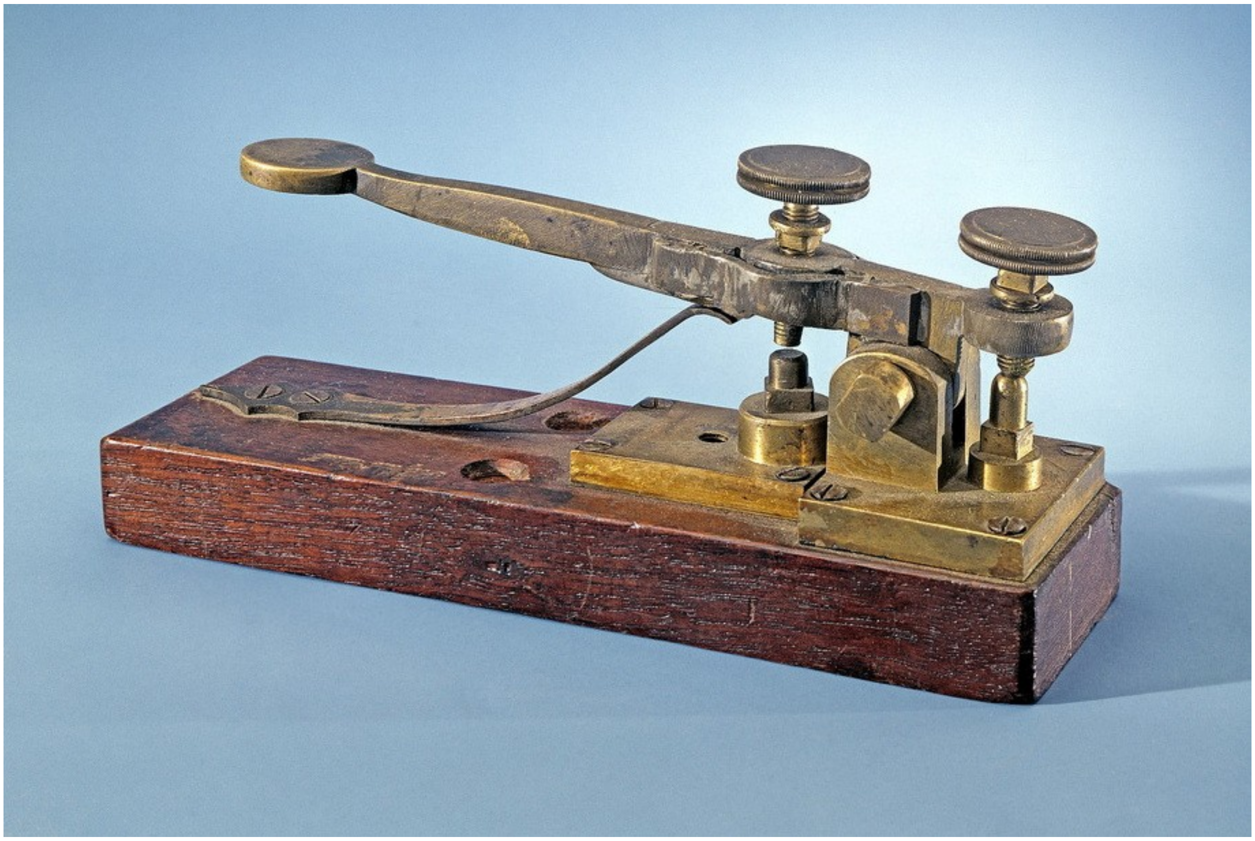


Image: http://www.telegraphkeys.com/images/straightkeys/mainpage/vail.jpg

Although Samuel F.B. Morse held the telegraph patent, and is generally credited with its invention, Morse's original idea was unworkable. It was Vail, his engineering assistant, who actually made the concept practical, designing appropriate instruments, and devising the "Morse" code itself, as we know it today. [1]

In a just world, full credit should be given to Vail, and the code itself renamed "The Vail Code." Morse may have supplied the money, but Vail supplied the brains.

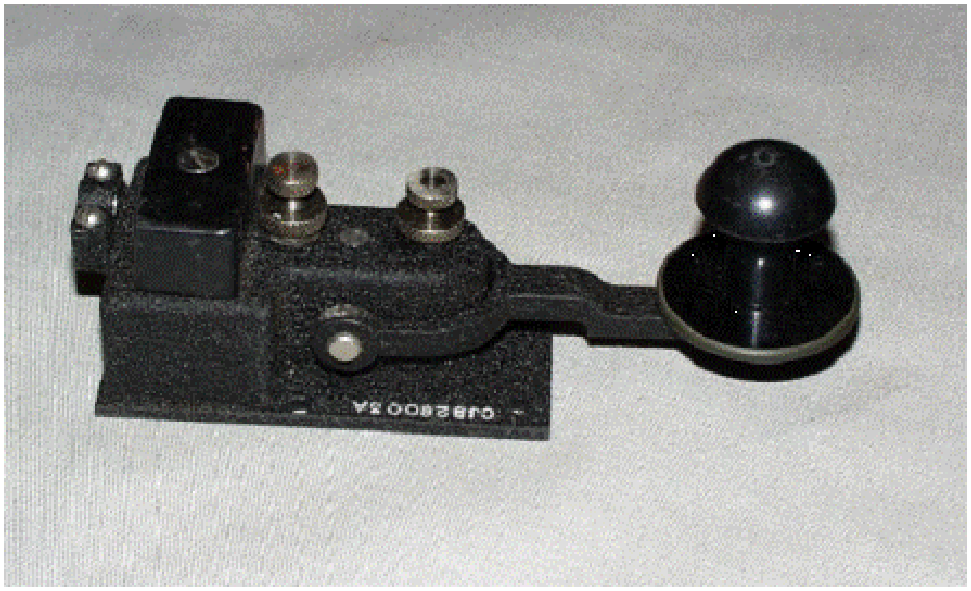
The telegraph key evolved over time, and this simple instrument is still in use today, in a more familiar form. For most of amateur radio history, the straight key was standard equipment, especially for newly licensed HF amateurs. The annual Straight Key Night sponsored by the A.R.R.L and running on January 1st for 24 hours, offers newcomers and old timers alike the opportunity to "pound the brass" using this most basic but effective tool.

It's surprising how this annual event can bring back memories of years gone by, and conjure up images of simpler days and the thrills that once were felt with every new QSO with a new state, country, or even just a new station, no matter where.

The Way We Were

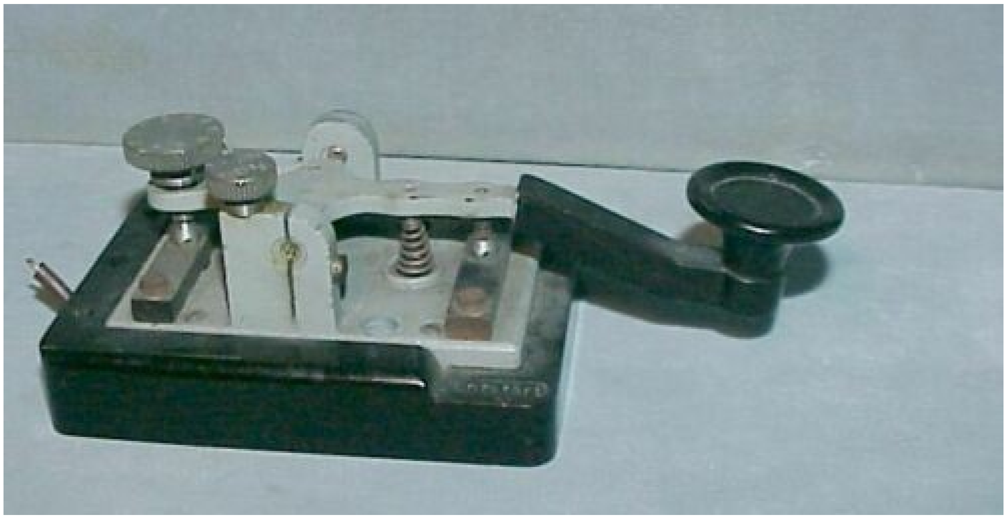
I hadn't operated in a Straight Key Night for many years, but this year I thought I'd give it a try again. I have a small, but interesting collection of telegraph keys, and the first thing I asked myself was: "Which straight key would I use?"

I might have used one of my World War II keys, like the U.S. Navy "Flameproof" key made by J.H. Bunnell & Co., among many others, and in my opinion the best American key made during the 20th Century:



U.S. Navy "Flameproof" key, Type CJB-26003A made by J.H. Bunnell & Co.
Image: http://jhbunnell.com/navykey.shtml

I might have chosen a classic and very well made key from the Axis powers: the Junker Key, (pronounced "YOON-ker"), made in Germany and extensively used during World War II and for many years thereafter:



Junker Eintstort key (German Military, WW II)
Image: https://www.ebay.com/itm/Vintage-WW2-Entstort-Junker-Naval-UBoat-TELEGRAPH-KEY/352838124957?hash=item5226ca859d:g:cycAAOSwB8NduZwk

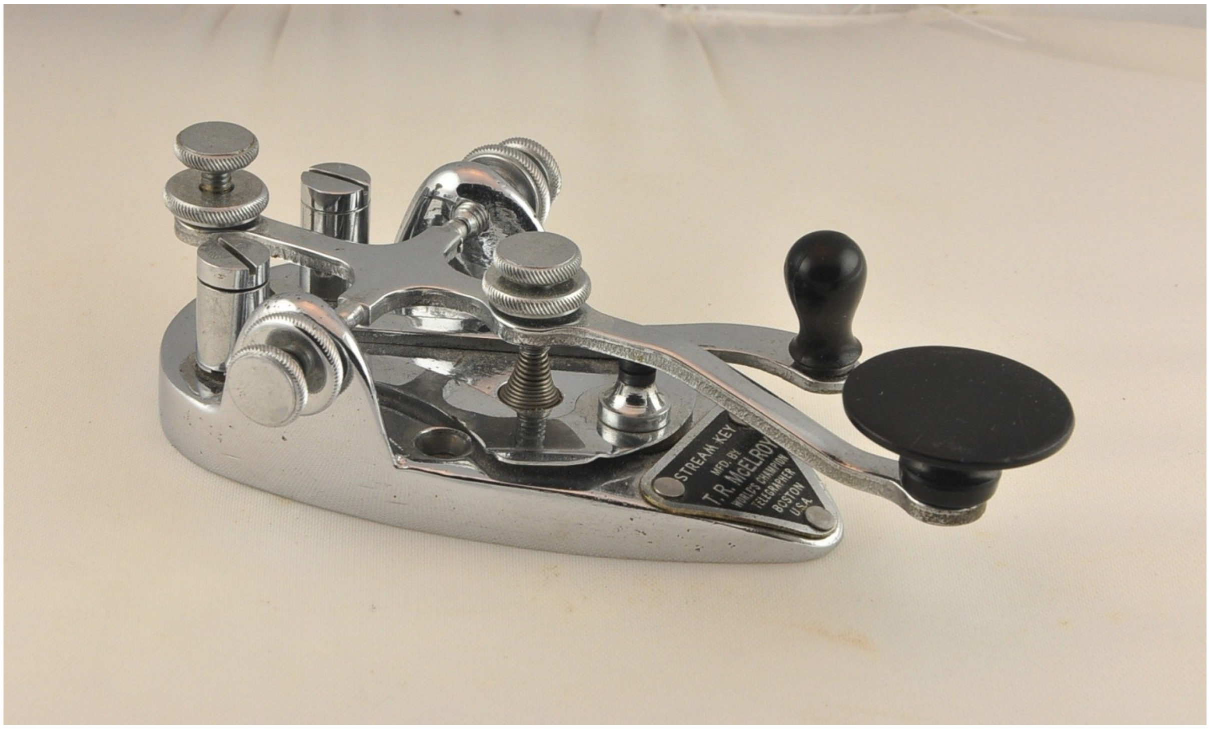
The Way We Were

The "Flameproof" was used in U.S. aircraft and submarines. They were entirely sealed to prevent any sparks forming on the key contacts from igniting fumes from fuel sources. Mine is mounted on a heavy steel base, and it is my favorite key of all. The Junker was used in German aircraft, ships, and ground vehicles. Mine includes a heavy aluminum base, but like the image above, it lacks the dust cover.

The Junker is a 3-wire device. One lead connects to a normally closed contact, another to a normally open contact, and the third lead is a common lead. The normally closed contact allows signals to enter the station receiver until the key is depressed. When the key is depressed, it disconnects from the normally closed contact, makes contact with the normally open contact, and thus provides a DC path to the transmitter while at the same time muting the receiver. This ingenious idea acts as a simple but effective T/R switch, and permits full break-in operation. [2]

The Junker is beautifully made with typical German precision. The spacing and spring adjustments are made via knurled "micrometer" knobs. But despite its high level of mechanical and electrical ingenuity, I have always found the "sunken" feature on the knob uncomfortable after prolonged sending, so I ruled it out of my choices for the Straight Key Night festivities.

I thought about using the beautiful chromed McElroy "Stream Key," made by the T.R. McElroy Co. of Massachusetts, which dates from the 1930's:



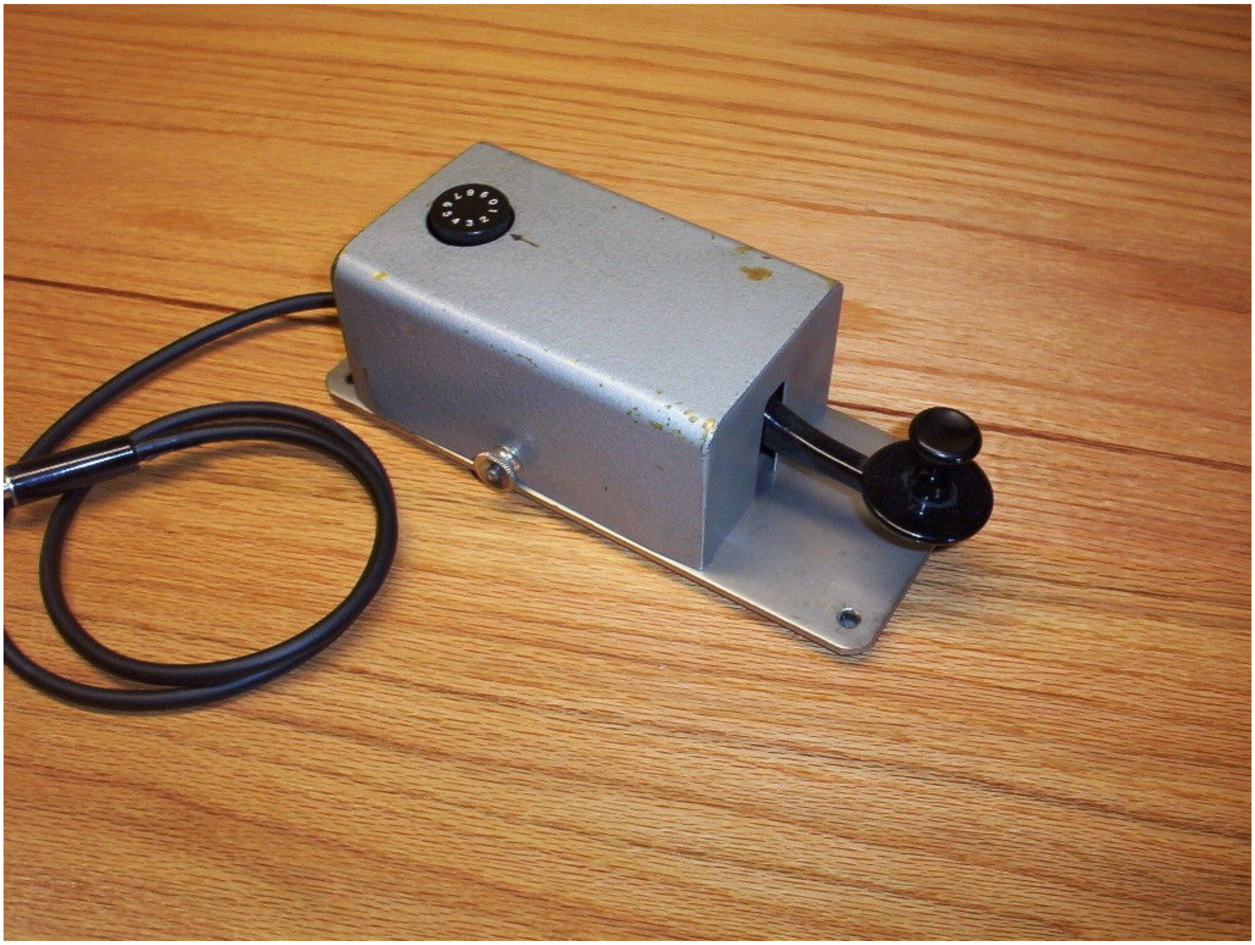
McElroy "Stream Key," teardrop pattern
Image: http://www.telegraphkeys.com/images/straightkeys/mcelroy/first%20stream.jpg

There are several versions of the McElroy "Stream Key," and they are also highly sought-after by collectors. Less attractive versions with black crackle finish and even Bakelite were still being manufactured until the late 1940's.

The Way We Were

Another possibility was the IT&T Marine key, made for the British Maritime Service. This rugged beauty was built for a lot of use by "hamfisted" commercial operators on merchant ships, and included a metal dust cover, like the Junker. The spring was not the usual coil spring found on most keys, but a large, quite robust leaf spring that could hold its tension well without further adjustment. The base (not visible in the picture below) is a heavy block of brown phenolic.

In addition, a calibrated knob at the far end allowed precise adjustment of the contact spacing. Overall, a very well made key. Mine does not include the metal cover or spacing adjustment knob, but even lacking these features, this is still a premium key built for years of reliable service. Here's a picture of the IT&T Marine Key, "fully dressed" in all its finery:

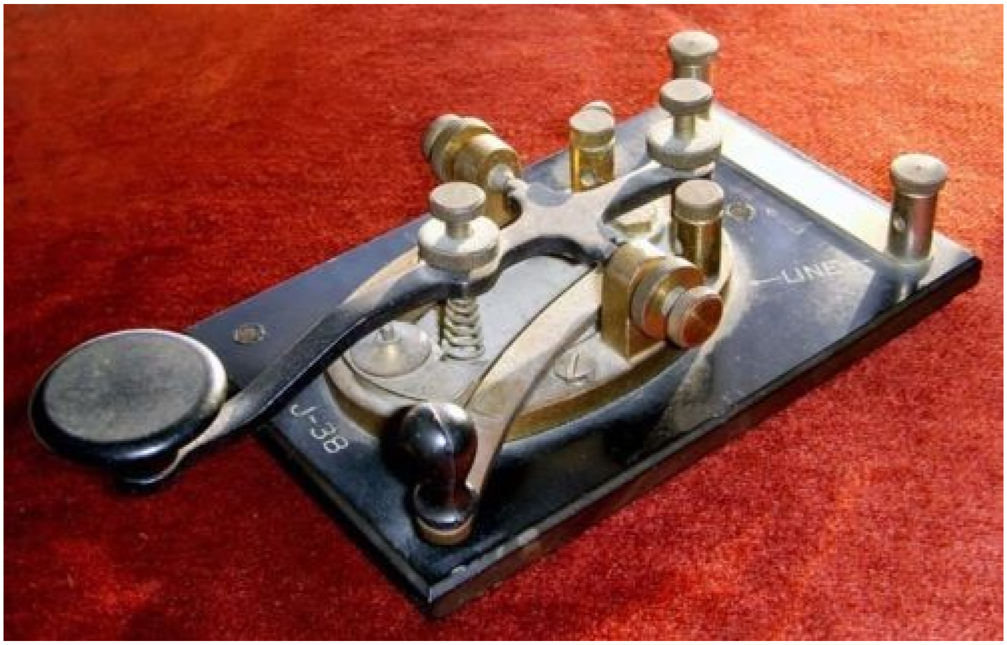


IT&T Marine Key (with cover and spacing adjustment knob)
Image: http://www.telegraphkeys.com/images/straightkeys/british/itt_marine1.jpg

The IT&T Marine key is very similar to one used by NATO forces during the Cold War period, well into the 1970s, and possibly beyond that. The main difference is that the NATO version has a slightly longer case, designed to include a large internal terminal block at the far end of the mounting plate for connecting to the radio transmitter. Both the IT&T Marine key and the Junker are 3-wire devices with normally closed and normally open contacts that permit receiver muting while sending.

The Way We Were

Of course, I could also have chosen the classic J-38 key for my Straight Key Night effort. This is probably the most common telegraph key known by amateurs. Many thousands of them were made during World War II by several contractors, including Lionel, J.H. Bunnell, and Connecticut Telephone, to name the most common varieties.



J-38 telegraph key (World War II, U.S. Army)
Image: https://www.ebay.com/itm/WWII-US-Army-Signal-Corps-Type-J-38-SEMCO-Telegraph-Key-w-2-Wooden-Box-Sounders/262505798715?hash=item3d1e909c3b:g:JWcAAOSwgY9XdZXI

Note that this key is not a "radio" key, despite the fact that it has been mainly used since World War II as a key by radio amateurs. The closing switch at right means that the J-38 was intended for field (landline) telegraph use. In landline telegraph applications, the closing switch is normally in the closed position, and the switch is only opened in order to "break" the circuit, and commence sending, as was common practice on traditional, non-military landline telegraph circuits.

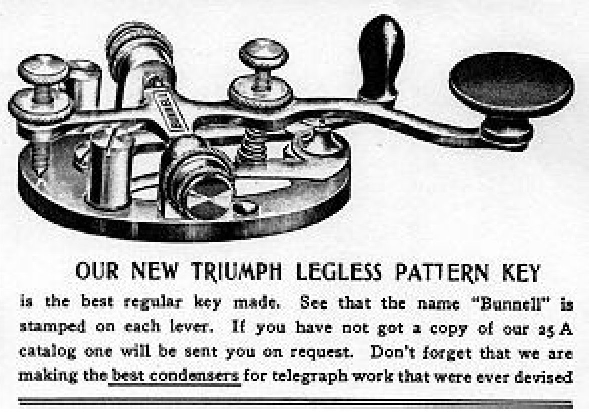
Note also that there are two sets of thumbscrew terminals, one set of which are shorted together at the far end. The two key terminals are marked "TEL" and "LINE." The "LINE" terminal on the key is connected to one side of the telegraph line, and the other side of the telegraph line is connected to the second terminal at the far end to complete the telegraph circuit. The "TEL" terminal on the key and its associated terminal at the far end connect to a pair of headphones (or possibly a sounder) for monitoring.

Additionally, some contractors added a small screw-eye to the Bakelite base. This was for tying down a short length of woven cloth from the end of the headphone cord in order to secure it to the key and prevent the headphone plugs from being accidentally pulled out of the thumbscrew terminals.

The J-38, as well as many similar models, were all based on the original J.H. Bunnell "Patent applied for February 15, 1881" design, and was billed as a "legless" key. [3] Earlier keys were "leg" keys that were equipped with two brass bolts extending below the key, enabling them to be secured either to the telegrapher's desk or to a K.O.B (Key on Board), which was a wooden platform, also including a sounder.

The Way We Were

In 1906, Bunnell added a refinement to their “legless” key: a steel lever. These keys were the famous “Triumph” pattern, and are the real granddaddy of all J-38 and similar styled keys. [4] Here’s the first advertisement for one, from September, 1906:



OUR NEW TRIUMPH LEGLESS PATTERN KEY

is the best regular key made. See that the name “Bunnell” is stamped on each lever. If you have not got a copy of our 25 A catalog one will be sent you on request. Don't forget that we are making the best condensers for telegraph work that were ever devised

Image: http://www.telegraph-history.org/bunnell/

In later years, many copies of the original J-38 design were manufactured, including cheaply made Japanese varieties identified as “JJ-38.” These used tiny, lubricated ball bearings to support the fulcrum, and a plastic, not Bakelite base plate. I had one of these years ago, and the ball bearings would often fall out during adjustment. Sooner or later, one of the ball bearings would roll somewhere out of sight and could not be found. When that happened, there was only one thing to do with the key: throw it away.

During the Straight Key night, not surprisingly, several stations were heard using a J-38 key. I would venture a guess that probably most of the keys used during Straight Key Night were J-38s or their Japanese copies, all based on the original Bunnell “Triumph” style.

So I had quite a choice of keys to choose from, but I finally made the decision to be different. I wanted to make my foray into this venerable activity memorable. The key I chose to use was a real antique, and it is the crown jewel in my key collection. It is a “camelback” type landline key, and it was made by the L.G. Tillotson Co. of New York City, around 1870.

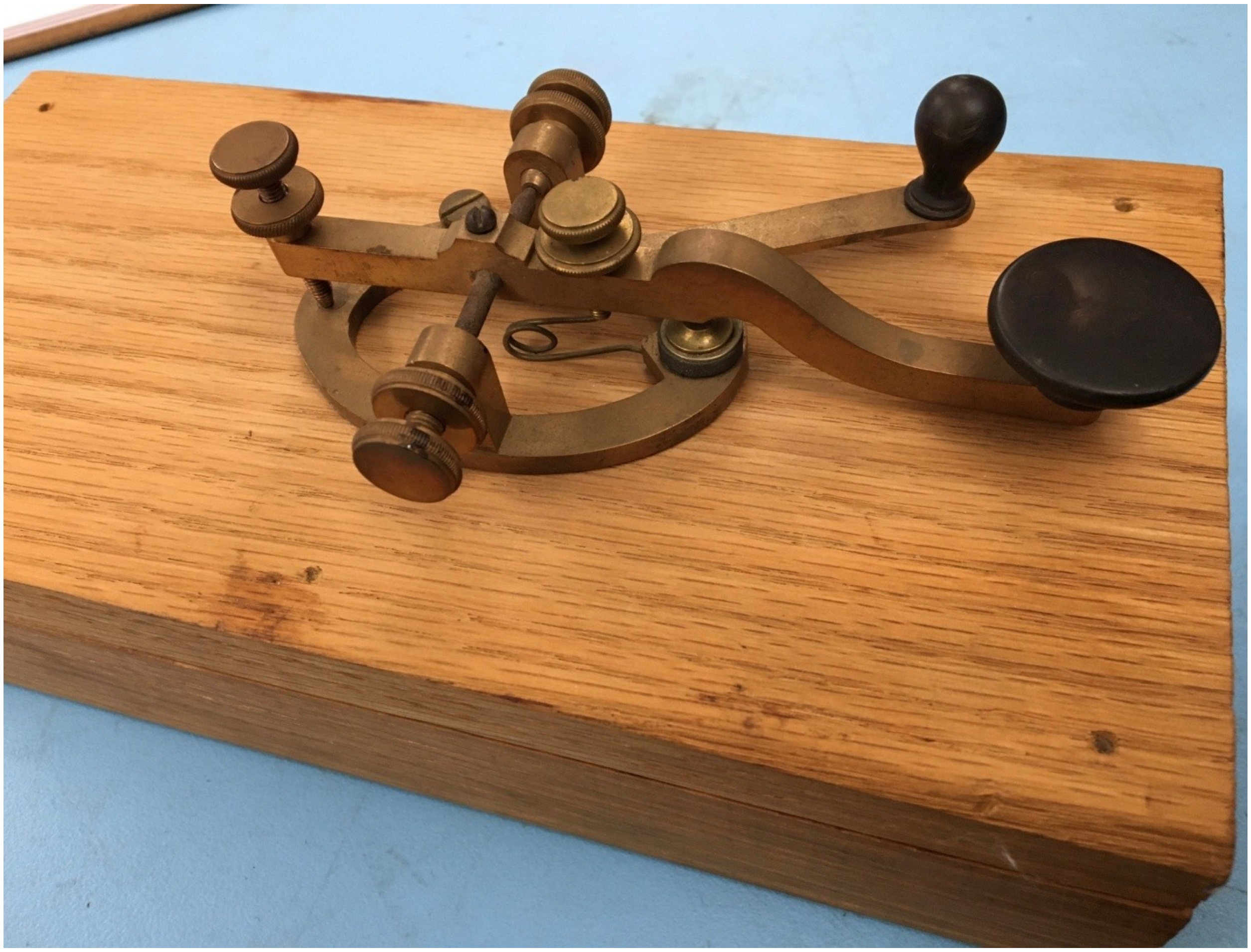
Camelback keys are called by that name because there is a small “hump” in the center of the lever, just above where the contacts are located. This feature appears on some of the earliest telegraph keys made, roughly from the mid 1850s to the mid 1880s.

In addition to L.G. Tillotson, there were several other manufacturers, some better known than others. One of the better known makers was G.M. Phelps of New York, founded by George M. Phelps, Chief Engineer of Western Union. [5]

Other makers were William Clark of Philadelphia, S.W. Chubbock of Utica, New York, Hinds & Williams of Boston, Charles Chester of New York, Thomas Hall of Boston, and Partrick & Carter of Philadelphia. Some camelbacks were also made by the California Electrical Power Co. of San Francisco, and others made in the machine shops of the Pennsylvania Rail Road. [6]

The Way We Were

Here's a picture of my L.G. Tillotson camelback I used during this year's Straight Key Night:

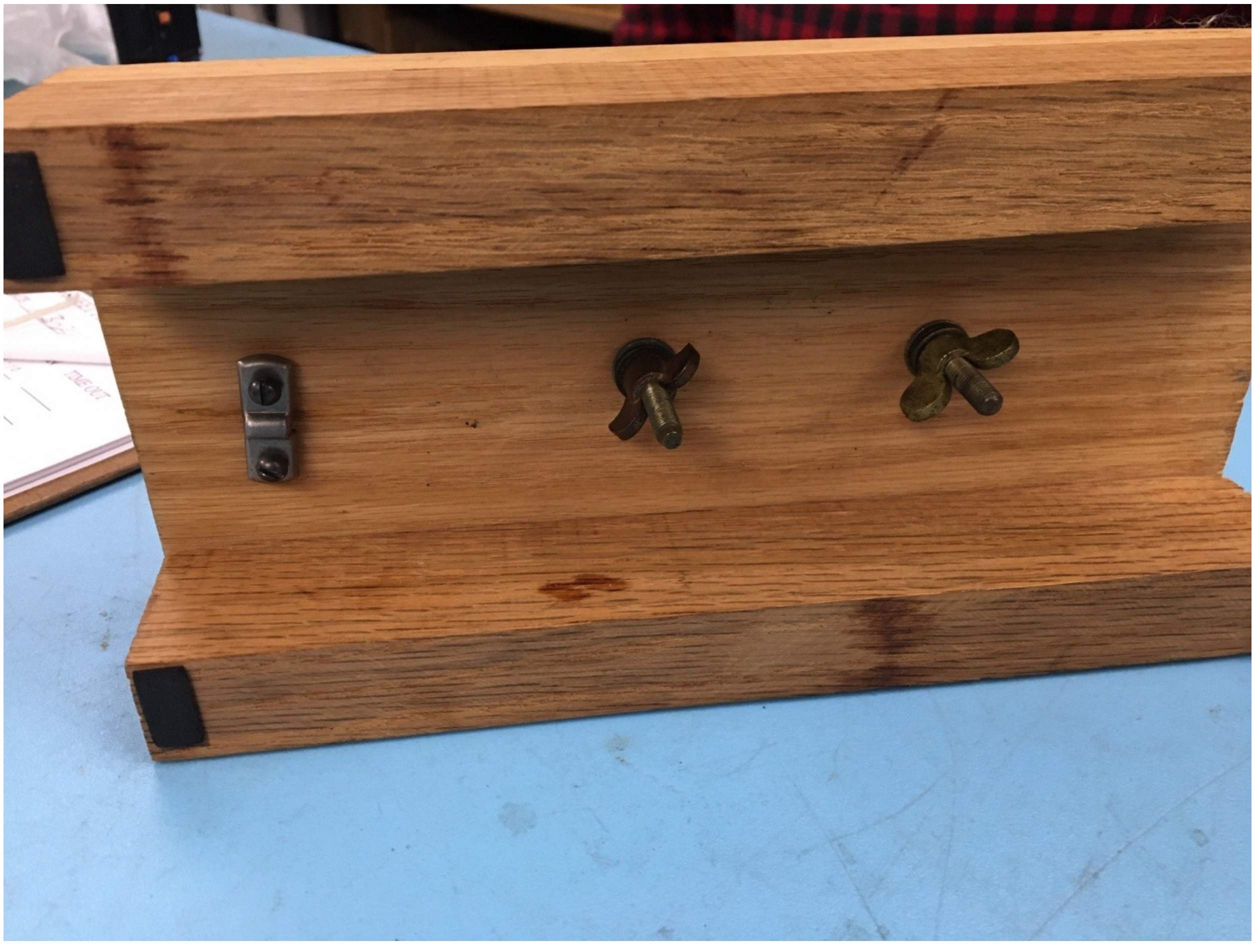


L.G. Tillotson camelback key, top view (Author's collection)
Photo: Brian, KD2KLN

There are several interesting features of this key. First, note the spring. It is not the usual type of coil spring with multiple turns, mounted in a vertical plane beneath the lever. The Tillotson spring is in a horizontal plane, and is only two turns – yet it is a very strong spring that once set, requires no further adjustment due to slippage.

Note that the key is mounted on a homemade oak platform. It was necessary to build this platform because of another feature of this key. The electrical terminals are two brass bolts that extend from the brass base of the key down about two inches. These brass bolts also served as a means of securing the key to the telegrapher's operating desk. Each brass bolt is equipped with brass washers and wingnuts to tighten the key to the desk and provide secure connection points for the telegraph line wires. Here's a view of the underside of the key on its platform:

In addition, I added a small strain relief at left for the associated cable, and four stick-on rubber cushions at each corner to prevent scratching of the operating desk.



L.G. Tillotson camelback key, bottom view of mounting platform (Author's collection)
Photo: Brian, KD2KLN

How well does it work? Like a dream. The workmanship is superb, although some tool marks are visible on the circuit closing switch. This key was made long before the days of CNC (Computer Numerically Controlled) machine tools, and was therefore made on manual lathes and milling machines operated by machinists who were real craftsmen. It is a work of industrial art, and a pleasure to use!

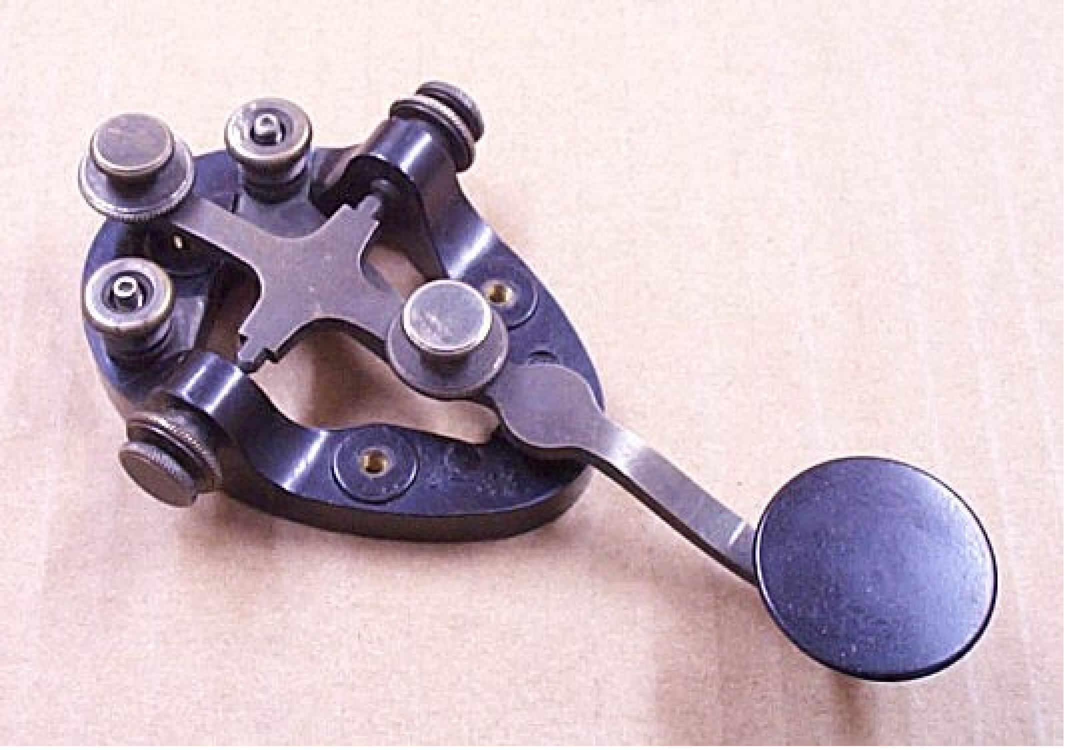
Who did I work during Straight Key Night, and how did these contacts churn up old memories of days gone by?

First of all, it must be said that the Straight Key Night (SKN) is not a "contest," per se. It is really nothing more than an opportunity to fire up and operate with a straight key, and this often includes running vintage transmitters and receivers, for a little nostalgia.

The Way We Were

So, after I'd had dinner, I went into my radio shack and fired up my 31 year old Kenwood TS-140S, wired my Tillotson camelback to the rig, and started tuning around on 40 meters. It was a delight to hear all those CW signals emanating from "pump handles," some giving themselves away as clearly originating from vintage transmitters with their distinctive chirps, thumps, key clicks and partially unfiltered notes. I felt like I was fourteen years old again, locked in a time warp full of Novice signals!

My first contact came at 9:43 PM on December 31st (0243 UTC on January 1st). It was with **K4HPP** in **Memphis, Tennessee**. The operator was Jim, and he was using a **J-37** key made during World War II. His transmitter was a **Heathkit DX-20** running about 25 Watts, **crystal controlled** on 7031 kHz, and a **Drake 2-B** receiver with a **Drake 2-BQ** Q-Multiplier.



World War II J-37 Key
Image: https://k6ix.net/J-37/Pics/J37-01-D.jpg

The J-37 is similar to the J-38, but note several differences: The J-37 was intended for radio use, not for landline telegraph. This is obvious from the absence of a circuit closing switch. Secondly, the base is Bakelite, not metal, and there is no mounting plate beneath it. It was normally screwed down to one of several military radio sets, or attached to a leg clamp for use in a combat situation. Finally, the spring is not a coil spring, but a metal leaf spring.

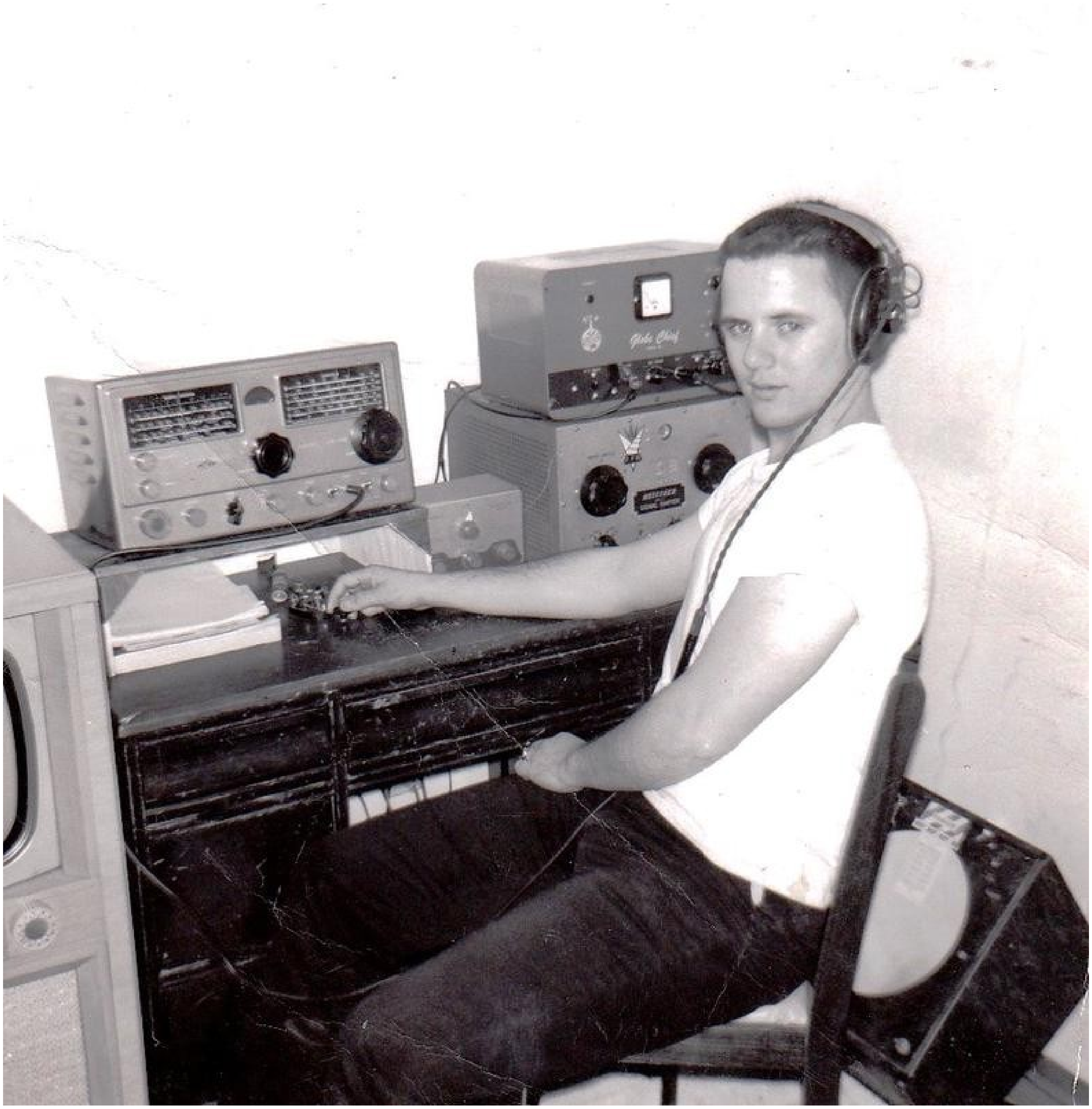
Jim gave his age as 75, and said he has been licensed for 60 years. The kicker in my contact with him is that the DX-20 transmitter he was using happened to be his very first rig as a Novice back in 1959.

The Way We Were

In 1960, when Jim passed the General Class exam, the DX-20 took a back seat to his newly acquired Globe Chief, made by World Radio Laboratories. It ran 90 Watts input, and was purchased at mail order dealer Walter Ashe. The receiver in those days was a National NC-98 with a Heathkit QF-1 Q-Multiplier. He also had a Meissner "Signal Shifter," which was used as a VFO or also as a backup transmitter.

Jim was an Engineering Manager at the Kellogg's cereal plant in Memphis until his retirement in 1999. [7]

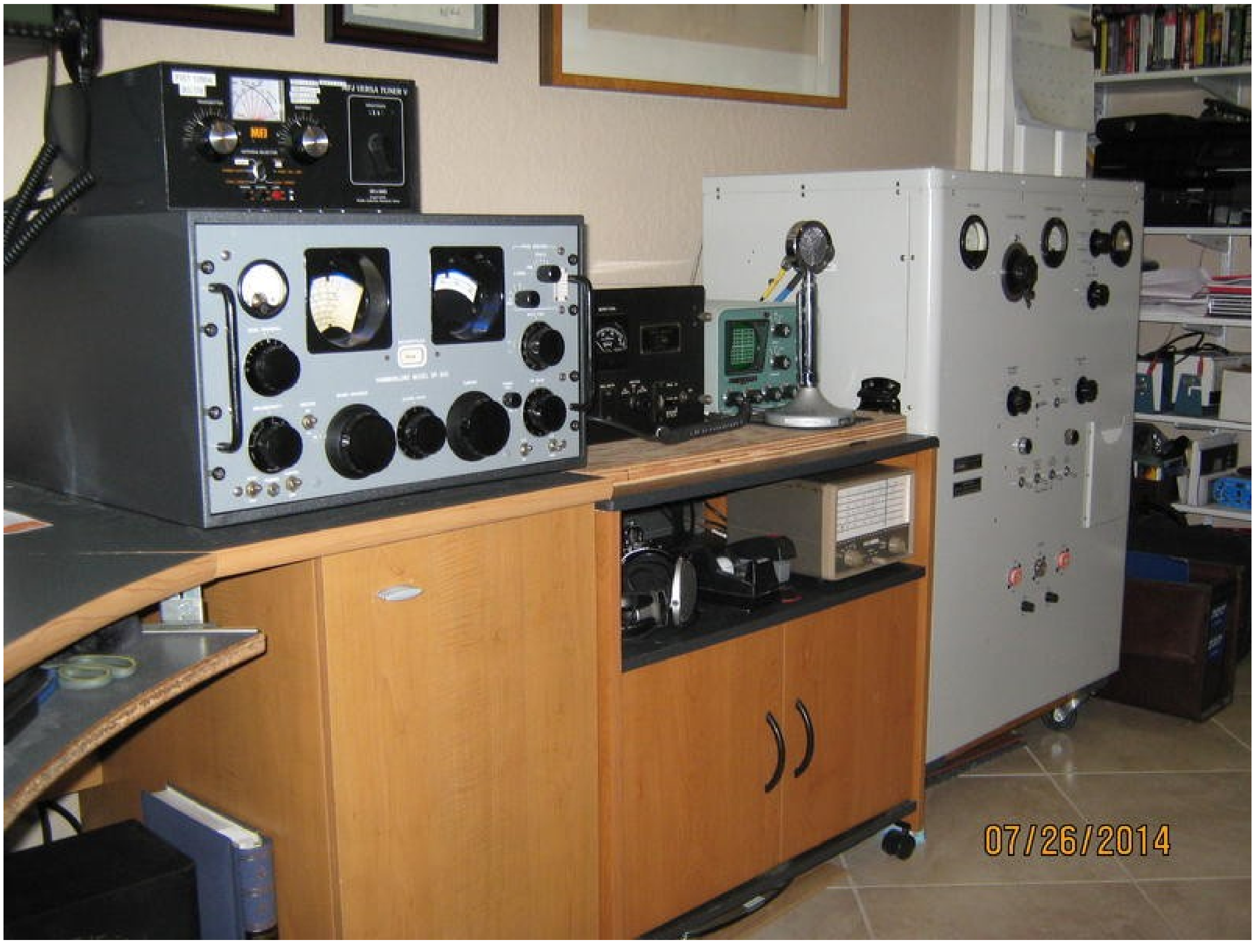
Here's a photo of Jim at his first General Class rig in 1960:



The Way We Were

My next contact came the next day at 10:17 AM (1517 UTC). It was only a short QSO, though, with **K3KKA**, Bob in **Eustis, Florida.** Unfortunately, propagation between Bob and me was not good enough for a solid contact. We exchanged RST reports and then said 73, so I don't know what type rig or key Bob was using.

However, a look at Bob's QRZ-page reveals that he is also active on AM phone, using some beautifully restored vintage equipment. Let's take a look…



K3KKA's vintage equipment
Image: https://www.qrz.com/lookup

At left is a Hammarlund SP-600 "Super Pro," a general coverage receiver covering LF to 6 meters. I had one of these once, and it is a LOT of receiver, sensitive all the way up to its highest tuning range. Also on the same tabletop is a Heathkit 'scope (for monitoring modulation percentage), and a classic Astatic D-104 microphone.

The large unit at right is identified as a World War II BC-610-G transmitter. However, to me, it looks more like a T-368/URT. Either of these would be capable of some 400 Watts output on CW, and somewhat less on AM phone. Also, on a shelf beneath the tabletop is an Eico 722 VFO, originally used with their model 720 and 723 transmitters in the 1960s.

The Way We Were

Bob's comments reveal that he was first licensed in Wheaton, Maryland in 1958 when he was 13 years old. He had a long career as a pilot, both in the military and later as Chief Pilot for the Monroe County Florida Sheriff's Office, then as a contract pilot for businesses. The top of his qrz.com page declares, "Real QSL cards only." [8] Bravo, Bob — you're a man unto my own heart!

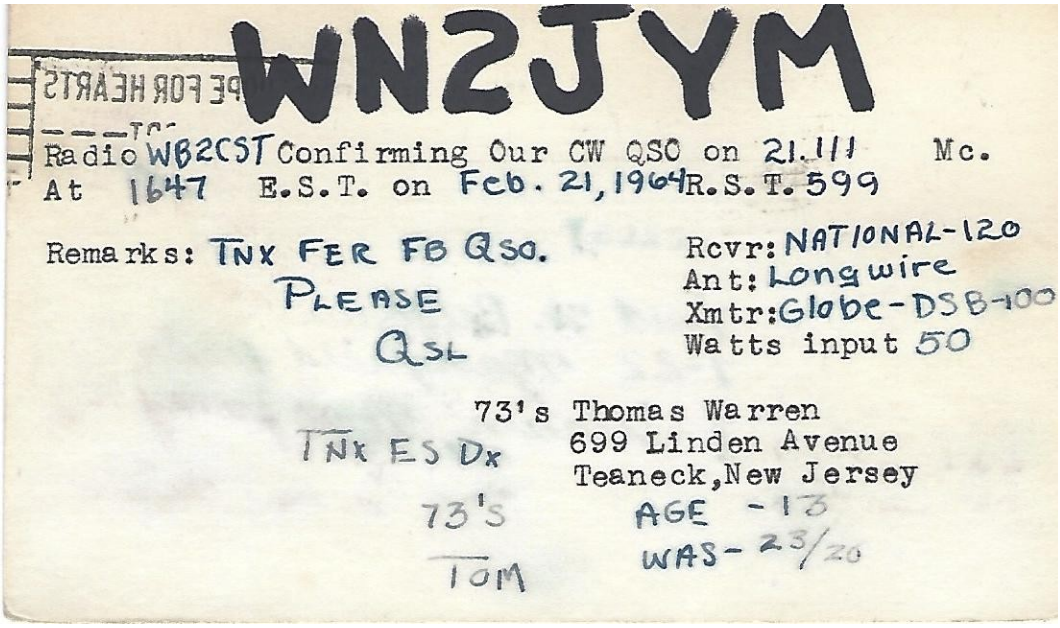
Then at 10:37 AM (1537 UTC), I had a nice rag chew with Buddy, **W4YE** located near **Rocky Mount, Virginia**, with his trademark "fist." I have worked Leland "Buddy" Smith on CW many times over the years, going back to the early 1970s. Buddy is in his 80s now. He was first licensed in 1952 in California as WN6QPC running a homebrew rig using a 6AG7 to a 6L6 final, at about 30 Watts input. [9] My first contact with him was when he was using the call W4YZC, which he obtained in 1953 after his family's move to Virginia. Buddy's dad, Leland W. Smith, Sr., was the previous holder of W4YE and W4AGI, and when dad became a Silent Key, Buddy was able to get dad's call. Dad also once held the call W5KL, and I have worked dad both as W4YE and W5KL. Dad was a long time member of the Potomac Valley Radio Club, a well known contest and DX club in the greater Washington, D.C. area – and Buddy is still an active member of that organization.

Buddy's key was a **World War II Navy "Flameproof,"** which I described earlier in this column. His rig was a **Ten-Tec Omni 7** running 90 Watts with a **Cush-Craft R8 Vertical** mounted on a clothesline about five feet above ground.

Leland "Buddy" Smith, W4YE
Image: https://www.qcwa.org/w4ye-11461.htm

The Way We Were

Next was a contact with Tom, **K3TW** in **Lecanto, Florida**, at 4:34 PM (2134 UTC). Tom was using the classic **J-38** key from his Novice days in Teaneck, New Jersey, in 1963. Tom's first call was WN2JYM, then WB2JYM as a General Class. I worked Tom many years ago, and remember him well – tearing up the CW bands as a newly licensed nearby ham. We had quite a QSO. I first worked Tom in February, 1964.



WN2JYM

Radio WB2CST Confirming Our CW QSO on 21.111 Mc.
At 1647 E.S.T. on Feb. 21, 1964 R.S.T. 599

Remarks: TNX FER FB QSO.
PLEASE
QSL

Rcvr: NATIONAL-120
Ant: Longwire
Xmtr: Globe-DSB-100
Watts input 50

73's Thomas Warren
699 Linden Avenue
Teaneck, New Jersey

TNX ES DX
73'S
TOM

AGE - 13
WAS - 23/20

I was mainly on 40 and 80 CW as a Novice, but once a General I spent more time on 20. I made very few contacts on 15 then, but my QSO with Tom was one of them.

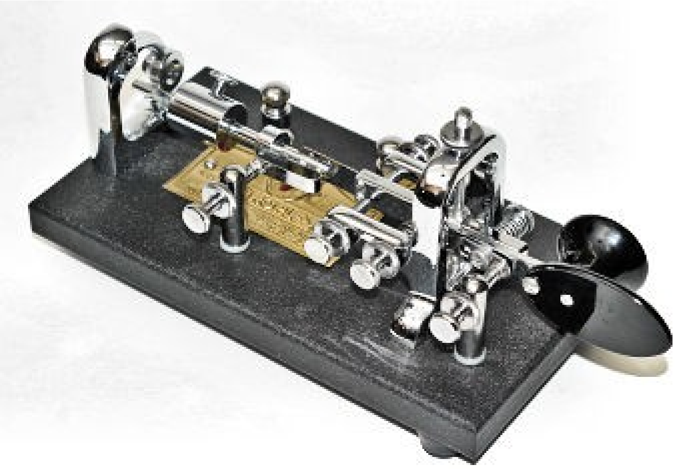
Tom recalled a number of local hams active in those days, all of whom I remember well. After graduating from Teaneck High, Tom went on to earn engineering degrees from Newark College of Engineering (now known as New Jersey Institute of Technology), and then M.I.T. He is retired from many years at Bell Labs in the Washington, D.C. area, where he also obtained his K3 call.

It was a hoot chatting about mutual friends and acquaintances over the years, and about the once very active "7-11" Radio Club, a local contest club established in the early 1960s. Sadly, most of the members of that club are now Silent Keys. The only other former member still alive is Ed, WB2FUU, but he is no longer active.

The Way We Were

I made one final contact during the SKN, this time at 6:09 PM (2309 UTC). The station worked was **K9MMS**, **Gary**, in **Saint Charles, Illinois**, near Chicago. Gary is 76 years old, but he said he was not using a straight key. He was using a **Vibroplex "Original"** bug, which he has owned since 1959.

Then, he switched gears and used a **Skillman** bug, which he's had since 1958. His station consisted of an **Elecraft K3**, **P3**, and an **AL8 Amplifier** running 800 Watts to a fan dipole at 25 feet. Here's a picture of the Vibroplex "Original."



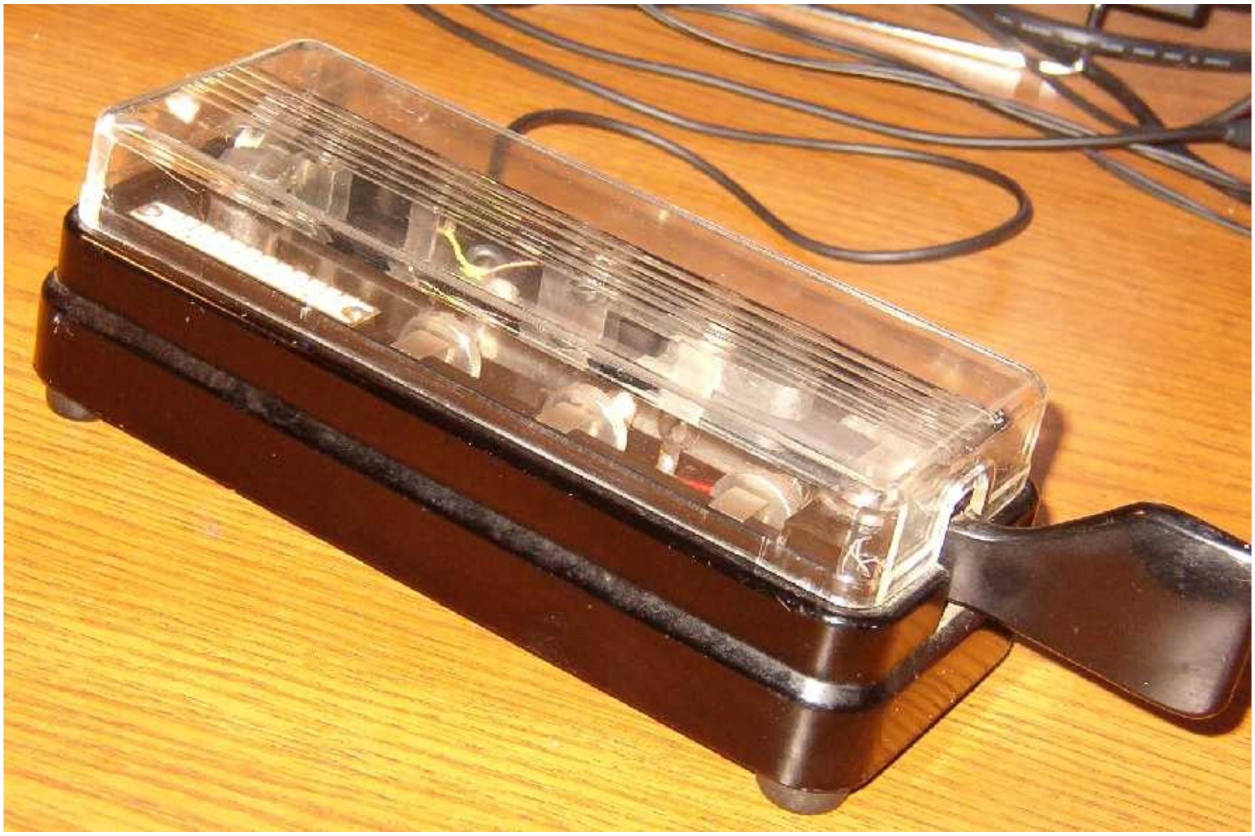
Vibroplex "Original" bug
Image: http://www.vibroplex.com/contents/en-us/p36_Original_Standard.html

This model is unchanged from the earliest days of its manufacture, and was always popular with amateurs and commercial operators. I once had one in the original leather-covered wooden box, but sold it several years ago.

The Skillman bug is a Japanese model, first imported to the United States beginning in the late 1950s, and sold by Radio Shack in Boston and locally by Lafayette Radio in Paramus. Actually, the Skillman bugs were supposed to be made for them by Hi-Mound, a well known and well-respected Japanese key manufacturer.

There are several differences between the Skillman/Hi-Mound and more conventional bug designs, such as those made by Vibroplex. For one thing, the Japanese models are single-lever types (one size finger piece). For another, they are sealed in a plastic cover, which is an excellent way to keep dust and dirt off the contacts and other parts. They are equipped with small rubber suction cups on the heavy steel base, to keep them from "dancing" around on the operating table or desk. Finally, these bugs were equipped with many adjustments which, although a bit daunting to set up properly, provide much greater flexibility in settings.

Here's a picture of the Skillman/Hi-Mound in its plastic cover:



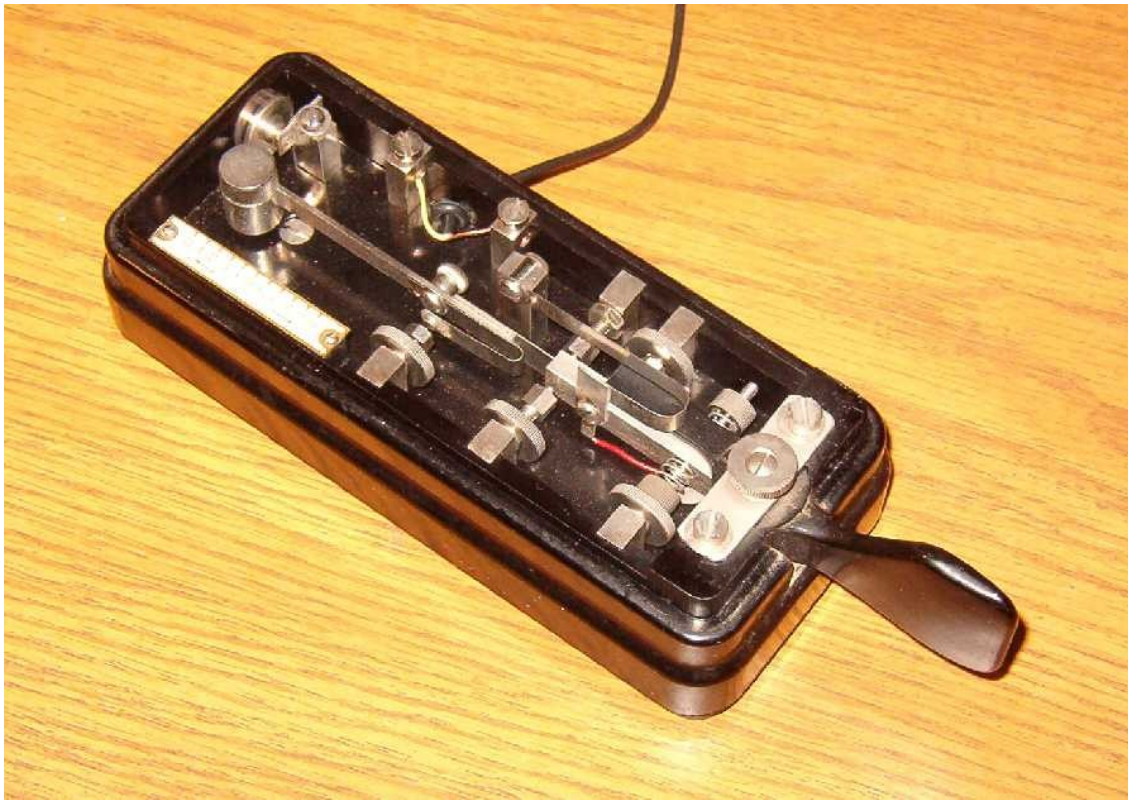
Skillman/Hi-Mound bug with cover
Image: http://wb9dlc.com/JapaneseBug.htm

As far as mechanical quality, there is no comparison, in my opinion. The Japanese Skillman/Hi-Mound bugs are far superior. Each part is precision machined, nickel plated brass except for a short piece of spring steel used on the dot arm.

In terms of accuracy, I can report from personal experience. It can't be beat for clean, smooth sending. I remember seeing them advertised in the Lafayette Radio catalogs years ago, and dismissing them as "cheap" and "crummy looking." Boy was I wrong!

I've used many different bugs over the years: Vibroplex, Les Logan Speedx, World War II J-36, even McElroy; and for my money, the Skillman/Hi-Mound beats them all. Take a look sometime at what they're selling for in good condition on eBay. One is being offered at more than $250.00.

Here's an inside view, showing all the adjustments available:



Skillman/Hi-Mound bug, inside view
Image: http://wb9dlc.com/JapaneseBug.htm

It just goes to show — that old cliché applies about not telling a book (or key) by its cover.

Gary, K9MMS, told me that he first bought his Skillman when he was a Novice back in 1958. He purchased it from the original Radio Shack store in Boston via their catalog. Later, as a General in 1959, he bought the Vibroplex. His first rig as a Novice was homebrew, with a Hallicrafters S-76 receiver. The homebrew rig was soon replaced by a Heathkit DX-20 in kit form, a gift from his parents.

By now, the Straight Key Night was nearly over. I made one last search across the 40 meter CW band, in hopes of finding a new station calling CQ SKN, but only heard several rag chews in progress. I even gave out with a number of CQs, but received no answers. I was being heard, though, even in Europe, as attested by a lookup on the RBN (Reverse Beacon Network).

I was received by 3 skimmers in Germany, along with others in Alberta, Canada; Spain; Iceland; Austria, and Bulgaria. I only wish somebody from those places would have plugged in a key and worked me!

The Way We Were

The annual Straight Key Night is one of the most interesting and unusual activities sponsored by the A.R.R.L. The code speeds are generally 15 words per minute or less, and there is no pressure to rack up lots of contacts. You relax, take your time, and engage in the fine art of conversation with another human being. If you're an old timer, you will no doubt remember your own early days in ham radio, as well as the vintage transmitters, receivers, and keys used by the stations you contact. If you're a newcomer, welcome aboard. You'll hear what things were like on the bands years ago.

For me, it was a respite from my usually frantic contest operating or sitting in a DX pileup, anxiously awaiting my turn to snag a "new one." It was a welcome change of pace, and one that I found most enjoyable.

Now, what could be more fun than that?

See you in Next Year's SKN!

73,

Fred W2AAB

Notes:

[1] "Straight Keys," *Telegraphkeys.com,* at: http://www.telegraphkeys.com/pages/straightkeys.html

[2] "The Junker DBGM Key," *Mtechnologies* website at: https://www.mtechnologies.com/junker/

[3] "The Evolution of a Triumph," at: http://www.telegraph-history.org/bunnell/

[4] Ibid.

[5] "Morse Key Development & History," *Electronics Notes,* at: https://www.electronics-notes.com/articles/history/morse-code-telegraph/morse-key-development.php

[6] "American Landline Keys (Pre-1880)," *Telegraphkeys.com,* at: http://www.telegraphkeys.com/pages/keys/landline1.html

[7] K4HPP listing: https://www.qrz.com/db/K4HPP/4

[8] K3KKA listing: https://www.qrz.com/lookup

[9] "W4YE – Scholarship Chair 2005 – 2012," *Quarter Century Wireless Association* website, at: https://www.qcwa.org/w4ye-11461.htm

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AMATEUR RADIO CLUB

FLARC Proof Of Performance

Why is FLARC New Jersey's most exciting radio club?

Here are just a few reasons so far in 2019:

- Field Day at Memorial Park
- Winter Field Day
- World Amateur Radio Day special event
- Earth Day At Great Falls special event station
- Garretson House special event station
- Memorial Day parade public event
- Portable Day(s) with BARA
- Fair Lawn Street Fair(s) public event
- Independence Day Fireworks public event
- Vintage Night
- "Kids Day" public event with TCRA
- North American QSO Party
- NJ QSO Party
- Foxhunts
- Summer VANFEST at W2DLT
- Field Trip to iHeart Radio

Plus:

- Thursday Night open house and CW class
- Soldering classes
- RACES/ARES public service
- Monthly w sessions
- Projects such as end fed and 2m antennas
- Annual member interest survey
- Weekly Monday "Near and Far" Net
- FLARC auction
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Plus:

- Over 45 consecutive months of speaker programs including K1JT in 2019!
- New equipment in the shack!
- New antennas on the roof!
- Coming Soon: Tuesday evening and Saturday morning club openings
- And…a clubhouse!!

That's why FLARC is the best club around!!
Join us with more activities, speakers and projects to come!

Around the Shack
de N4GG

Coax – Which Type?

From novice days (1961) through early adulthood I couldn't rub two nickels together. Choosing among coax options was easy – whatever someone would give me, or I could get for pennies from a battered cardboard box under a flea market table was "just fine." At the time, I thought people gave away coax with the shield turned black because black shields were a pain to solder to. I scraped the black oxidation off a lot of coax, for many years, until I had a little money and a little knowledge. The knowledge part: Coax with a black shield has seen a lot of water intrusion and is very, very lossy.

Even if you had some money and knowledge in the 60s and 70s, you were likely using RG-8 or RG-58 for 50 ohm coax and RG-11 or RG-59 for 75 ohms. Even in those days there were other choices, and sub-choices such as RG-8A and RG-8/U, but hardly anyone paid any attention to the details. RG-8 was RG-8. If you had really BIG BUX and BIG kilowatts you used RG-17.

The history of coax is a great subject – but not for this month's column. Read the Wiki on coax – it's an interesting story. Suffice it to say coax has changed a lot over the years and what's available now far surpasses what was available 50 years ago. The invention of foam dielectric enabled lower loss and lower weight for coax of the same diameter as the coax from the good-old-days. The outer jacket material has improved too.

Today, RG-213 and RG-8X are the basic 50 ohm coax choices, but there are a lot of additional options. One I use a lot is Davis Bury-Flex. It is rated for direct burial – which I have never done intentionally, but I do have a lot laying on the ground in the woods behind the house and over the years the annual leaf and limb falling have buried a lot of it. It's been out there for years – trouble free.

I also use a good deal of Andrew Heliax – the 3/8 inch size which directly accepts a PL-259. I bought a new 500 foot roll, at a bargain price, at a hamfest some years ago.

I recommend doing your homework before picking coax for your next antenna project. A good source of information are the coax tables provided by "The RF Connection" in Maryland. https://rfconnection.com/belden-9913f7-cable/coaxial-cable/

Tables can also be found in the ARRL Antenna Book, ARRL Handbook and in many places on the web. The best coax for a given application is often not "the best there is." Here is a case in point:

Last month I hinted I picked a very old coax type: RG-58C/U for a new antenna I just put up. There is more loss in old-style RG-58 than there is in new foam dielectric RG8-X, so why did I do that? The antenna is an 80 meter inverted vee, with a balun at the center supported by a tree – about 90 feet above the ground. From the balun to the ground, the coax had to support itself – without stretching. The difference in loss between RG-8X and RG-58 at 3.5 MHz wasn't enough to care about – but 90 feet of RG-8/X hanging straight down will stretch. The coax, its outer jacket and the foam dielectric thin as it stretches over time. That changes the characteristic impedance – a little – which I did not care about, but significantly reduces the power handling ability of the coax – and that I do care about (read: 1500 watts). Solar heating and RF heating contribute to the stretching/thinning. Eventually foam dielectric coax used in this application might break or short.

Good-old-fashion RG-58C/U has a polyethylene dielectric which won't stretch under any circumstances and a Type II jacket which also won't stretch and will stand up to the weather. A few feet after the RG-58C/U makes it to the ground, I joined it to Davis Bury-Flex to complete the "on the ground" run to my backyard antenna switch.

I chose a coax type seldom used anymore, but it's not "obsolete." The key word is "chose."

Choose your coax!

73,

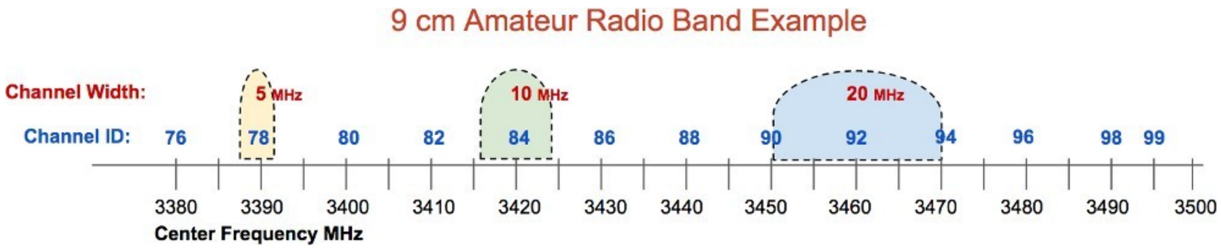
Hal N4GG

AREDN Network Radio Spectrum Characteristics

Courtesy of Randy WU2S

AREDN® networks operate in the microwave radio spectrum, and licensed amateur radio operators have unique access to many of these frequencies. For bands in which amateur operators share the spectrum, there is an increased chance for RF interference which may make some frequencies unusable for AREDN® data networking. For best results, select frequencies that are not shared with other unlicensed users.

Each band is divided into channels, each of which consists of a 5 MHz frequency offset identified by the center frequency of the channel and assigned a numerical label. In the example below you can see that a selected channel may use more or less of the frequency range based on the chosen channel width. The wider the channel, the more overlap there will be with adjacent channels. Wide channels have the effect of reducing the number of non-overlapping or non-interfering channels that will be available for use. When selecting channels and widths, be sure to use non-overlapping channels. Devices not using the same channel and channel width that overlap will interfere with one another and cannot communicate to coordinate the sharing of bandwidth.



All of the 33 cm band is shared with other FCC authorized users. All of the upper channels on the 13 cm band are shared with standard FCC Part 15 WIFI (IEEE 802.11x) users, as are all of the lower channels on the 5 cm band. The only frequency range which amateur operators do not currently share with non-licensed users is the 9 cm band, in which the US military may occasionally operate radio location units. The following table lists each amateur radio band, frequency range, total bandwidth of allocation, and the number of channels that are available for AREDN® networking.

Band	Frequency Range	Total Bandwidth	Channels
33 cm	902-928 MHz	25 MHz	5
13 cm	2390-2450 MHz	45 MHz	9
9 cm	3300-3500 MHz	120 MHz	24 (all unshared)
5 cm	5650-5925 MHz	260 MHz	52 (14 unshared)

The table above shows that the 9 cm band has the most available bandwidth in its unshared channels, while the 5 cm band has the next largest amount of available bandwidth in unshared channels. The choice of a frequency band for AREDN® networking depends on several different factors, but you can “mix and match” bands in your network design as long as both sides of a radio link use the same band, channel, and channel width.

You have the option of selecting the channel width for each link. When using channels at the top or bottom of a band, be certain that your chosen width will not transmit outside of the FCC Part 97 allocation for that band. Different channel widths may yield better throughput than others. In some areas operators use different channels to isolate links, so they may need to use 10 MHz rather than 20 MHz channels in order to ensure they have enough available channels. Also, long distance links simply have better performance using 10 MHz vs. 20 MHz or 5 MHz channel widths. Test the performance of your links using various channel widths to ensure that they are optimized.

AREDN Network Radio Spectrum Characteristics

Some of the advantages and disadvantages of each frequency range are explained in the sections below.

900 MHz (33 cm) Characteristics

Disadvantages

The entire 33 cm band is shared between several FCC authorized radio services. The disadvantage of using this band for AREDN® networking is that in all but the most remote areas the RF noise floor may be very high, which reduces the SNR and results in packet loss, retransmission delays, and lower usable link quality.

Another disadvantage is that the equipment can be more expensive than devices that operate in the 2.4 and 5.8 GHz bands. Also the entire band is quite narrow (25 MHz) which means that only one, two, or five radio channels can exist in this shared frequency range, depending on the channel width that is selected.

Advantages

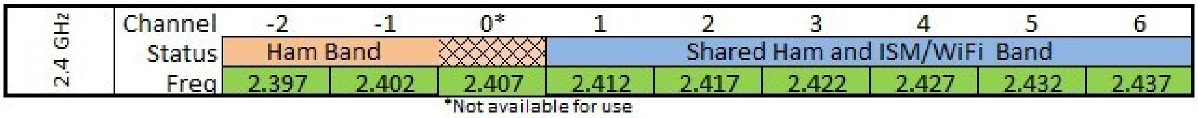
The advantage of this frequency band is that its longer wavelength makes it better suited for penetrating some types of obstructions and foliage which would normally block signals at higher frequencies. Its NLOS (Non Line of Sight) propagation characteristics may be exactly what is needed in order to establish an RF link between two difficult locations.

2.4 GHz (13 cm) Characteristics

Disadvantages

The upper channels of the 13 cm band are shared with several other FCC authorized services. Depending on local RF conditions it may not be possible to use these shared channels because of the high noise floor which reduces SNR and decreases signal quality. This leaves licensed amateur operators only two unshared channels with a possible bandwidth of 10 MHz each.

One concern with all of the higher frequency bands is that there must be clear line of sight between the nodes on each side of the link. This means that not only do the nodes need to have an unobstructed direct path, but the Fresnel Zone between the nodes must also be clear. The diameter of the Fresnel Zone depends on the frequency and the distance between nodes. For example, on a link in the 13 cm band with 10 miles between nodes, the first Fresnel Zone radius will be 72 feet. If less than 20% of the Fresnel Zone is obstructed there is little signal loss, but any blockage beyond 40% will cause significant signal loss and could make the path unusable. In the 13 cm band the 60% no blockage radius is approximately 43 feet, which is often further than most *Intermediate* or *Last Mile* nodes have been installed. Careful consideration must be given to node height and the terrain between nodes in order to minimize obstructions.



2.4 GHz	Channel	-2	-1	0*	1	2	3	4	5	6
	Status	Ham Band		▨	Shared Ham and ISM/WiFi Band					
	Freq	2.397	2.402	2.407	2.412	2.417	2.422	2.427	2.432	2.437

*Not available for use

AREDN Network Radio Spectrum Characteristics

2.4 GHz (13 cm) Advantages

Within the available frequency range you have the option of selecting channel widths of either 5, 10, or 20 MHz. A larger channel width will provide higher data rates. However, one effect of reducing the channel width is to increase the SNR to improve signal quality. For example, changing from a 20 MHz to a 10 MHz channel width will result in a 3 dB signal gain and could make the difference between a marginal link and a usable one. Just remember that when you cut the channel width in half you are also reducing your maximum throughput by half. Carefully test your links to ensure optimal performance.

One advantage for the 13 cm band is that radio equipment and antenna systems are more readily available and less costly due to higher consumer demand. There is a wide variety of equipment from several manufacturers which supports the AREDN® firmware and operates in this band. With clear line of sight and well-tuned antennas, 2.4 GHz signals can propagate across very long distances.

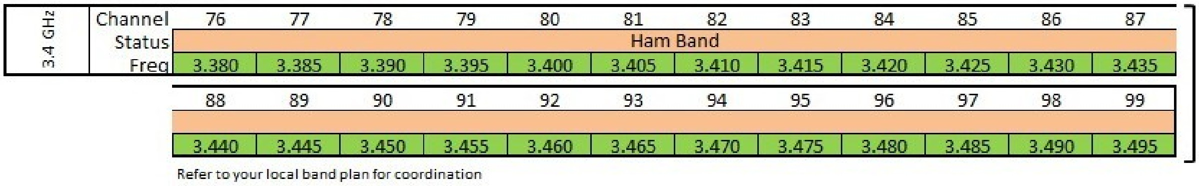
3.4 GHz (9 cm) Characteristics

Disadvantages

As mentioned above, there must be clear line of sight and the Fresnel Zone between nodes also must be clear. For a link in the 9 cm band with 10 miles between nodes the first Fresnel Zone radius will be 62 feet, which is less than the 13 cm band discussed above.

However, the 60% no blockage radius is still about 37 feet. Consider node AGL (height Above Ground Level) and terrain in order to minimize obstructions.

Equipment for the 9 cm band is less readily available and is typically more expensive due to less consumer demand. Care must be taken when selecting radios so as not to confuse them with the more common WIMAX (IEEE 802.16) devices which are designed for the 3.65 GHz range and are not supported by AREDN® firmware.



3.4 GHz	Channel	76	77	78	79	80	81	82	83	84	85	86	87
	Status	Ham Band											
	Freq	3.380	3.385	3.390	3.395	3.400	3.405	3.410	3.415	3.420	3.425	3.430	3.435
		88	89	90	91	92	93	94	95	96	97	98	99
		3.440	3.445	3.450	3.455	3.460	3.465	3.470	3.475	3.480	3.485	3.490	3.495

Refer to your local band plan for coordination

Advantages

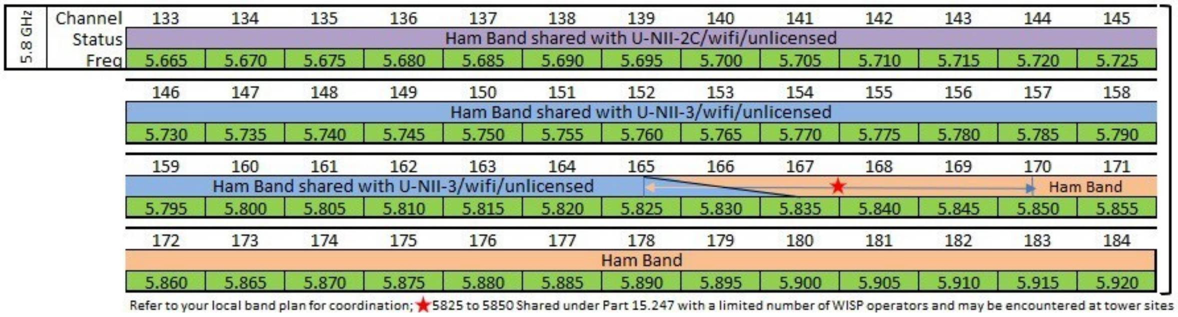
The main advantage for using the 9 cm band is that it has more available bandwidth for use in unshared channels than any other band. You can select channel widths of 5, 10, or 20 MHz, with larger channel widths providing higher data rates. Remember that reducing the channel width will increase the SNR to improve signal quality if that is an issue for a particular link. Equipment in the 9 cm band is well-suited for *Backbone Links* since there is little possibility for interference from other devices sharing these frequencies at tower sites. With clear line of sight and well-tuned antennas, 3.4 GHz signals can propagate across very long distances.

AREDN Network Radio Spectrum Characteristics

5.8 GHz (5 cm) Characteristics

Disadvantages

As mentioned previously, there must be clear line of sight and the Fresnel Zone between nodes also must be unobstructed. For a link in the 5 cm band with 10 miles between nodes the first Fresnel Zone radius will be 46 feet, which is much less than the frequency bands discussed above. However, the 60% no blockage radius in the 5 cm band is still about 28 feet. Be sure to account for node AGL and terrain in order to achieve clear line of sight between nodes.



5.8 GHz														
	Channel	133	134	135	136	137	138	139	140	141	142	143	144	145
	Status	Ham Band shared with U-NII-2C/wifi/unlicensed												
	Freq	5.665	5.670	5.675	5.680	5.685	5.690	5.695	5.700	5.705	5.710	5.715	5.720	5.725
		146	147	148	149	150	151	152	153	154	155	156	157	158
		Ham Band shared with U-NII-3/wifi/unlicensed												
		5.730	5.735	5.740	5.745	5.750	5.755	5.760	5.765	5.770	5.775	5.780	5.785	5.790
		159	160	161	162	163	164	165	166	167	168	169	170	171
		Ham Band shared with U-NII-3/wifi/unlicensed								★			Ham Band	
		5.795	5.800	5.805	5.810	5.815	5.820	5.825	5.830	5.835	5.840	5.845	5.850	5.855
		172	173	174	175	176	177	178	179	180	181	182	183	184
		Ham Band												
		5.860	5.865	5.870	5.875	5.880	5.885	5.890	5.895	5.900	5.905	5.910	5.915	5.920

Refer to your local band plan for coordination; ★5825 to 5850 Shared under Part 15.247 with a limited number of WISP operators and may be encountered at tower sites

Advantages

One advantage for using the 5 cm band is that it contains 52 channels, and many of them at the upper end of the band are under-utilized with less chance of interference. You can choose channel widths of 5, 10, or 20 MHz, with larger channel widths providing higher data rates. Remember that reducing the channel width will increase the SNR to improve signal quality if that is an issue for a problem link.

The radio equipment and antenna systems for this band are readily available and are less expensive due to greater consumer demand. There is a wide variety of equipment from several manufacturers which supports the AREDN® firmware and operates across the 52 available channels. Radio and antenna systems for this band, which are similar in size to those for other bands, will often have higher gain. Devices in the 5 cm band are also well-suited for *Backbone Links* since there is little chance for RF interference from other radios sharing these frequencies at high profile sites. With clear line of sight and well-tuned antennas, 5.8 GHz signals can propagate across very long distances.

Different frequency ranges are available to connect the mesh nodes that are required in order to fulfill the purposes for your network. As you plan the frequencies to be deployed at specific locations, it may be helpful to use a *spectrum analyzer* for identifying ranges that are already in use. The ultimate goal is to have a reliable data network that accomplishes its purpose for providing services to the intended destinations and users.

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Major Wayne Smith WB2ONZ Discusses "The Civil Air Patrol Communications Program" March 20th As The 2020 FLARC Speaker Series Continues

The March 20, 2020 FLARC speaker program discusses a critical but often unnoticed part of our communications security infrastructure – The Civil Air Patrol (CAP).

The program will be held at the Fair Lawn Senior Center, 11-05 Gardiner Road in Fair Lawn.
The program begins at 7PM and refreshments will be served.

CAP's radio systems are well-prepared to provide contingency communications when commercial communications systems are unavailable or overloaded. CAP holds 15 national voice nets a week on multiple HF frequencies with close to 120 daily check-ins. All 50 states plus Puerto Rico and the District of Columbia are represented in the national nets. There are many region and state-level HF nets on various schedules. Some areas conduct local VHF nets. CAP also maintains duty station watch on a national suite of dedicated ALE (Automatic Link Establishment) frequencies, ready for unscheduled relay of internal and external traffic, and is developing an infrastructure of MilStd 188-110 data communications, which will have HF modems installed at all levels of the organization. Over 19,000 CAP members are trained in use of these radio systems, including close to 4,500 holding, or in training for, advanced communications qualifications. Many, but by no means all, are amateur radio operators.

Our speaker is Major Wayne Smith who is the Deputy Group Commander and Communications Officer for Long Island Group, Civil Air Patrol / US Air Force Auxiliary. He manages a volunteer team supporting air and ground based VHF and HF radio communications, supporting Civil Air Patrol missions including: Emergency services, air search and rescue, homeland security and cadet programs. He has more than eleven years of experience in this role.

Major Smith is responsible for training and supervision of communications officers and radio operators in eight CAP squadrons located throughout Nassau and Suffolk counties (NY), communications support of Group and Squadron activities, communications planning including emergency response, inter-agency communications liaison and communications infrastructure and equipment requirements planning and management.

He was recognized as New York Wing Civil Air Patrol "Communicator of the Year" in 2016 and 2010 and a Northeast Region Commander's Commendation for Communications Support (2013). Major Smith was awarded a Civil Air Patrol Disaster Relief Ribbon for support he provided in response to hurricane Sandy and Irene. He is also an active, FAA licensed Private Pilot and a Civil Air Patrol Mission Transport Pilot.

Wayne has been an active ham since the 1970s. He has an Advanced Class license (WB2ONZ). He enjoys digital communications modes and mobile operating, including mobile HF. He is a member of the Great South Bay Amateur Radio Club.

Major Wayne Smith WB2ONZ

CAP Communications Team

Florencia Pierri KD2PHZ Highlights "The First Mass Audience Radio Broadcast" As The FLARC 2020 Speaker Series Opens

Over forty FLARC members and guests heard Florencia Pierri KD2PHZ give a detailed overview on the contributions of over 7,000 amateurs and "wireless telephony" in the broadcast of the Carpentier-Dempsey heavyweight boxing match. The impact of the early technology, the reputation of RCA and its investment in radio, the politics of getting a broadcast on the air and the evolution of radio equipment (the use of speakers as an example) made for a fascinating presentation and subsequent discussion.

Florencia Pierri KD2PHZ

The early pioneers of radio were discussed in detail

Florencia KD2PHZ discussing the details of the event with attendees

L to R: Nomar NP4H, Florencia KD2PHZ and Van W2DLT presenting the FLARC Certificate of Appreciation for a great presentation.

We learned the early role of hams in the first major radio broadcast

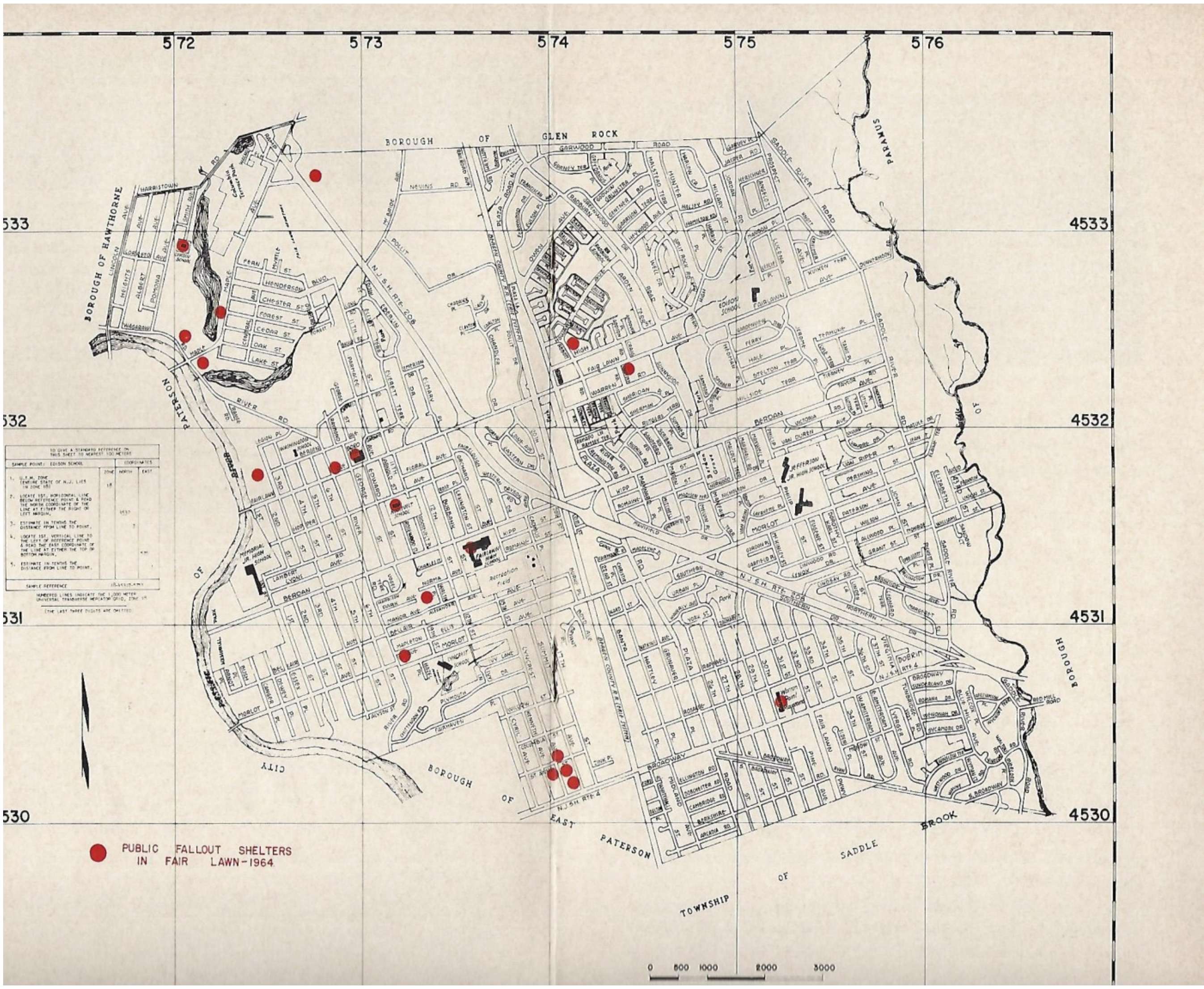
Over 40 FLARC members and guests were in attendance

Duck and Cover!!
Fair Lawn Bomb Shelters In 1964

Fred W2AAB found this gem when searching his archives earlier this month. He happened upon documents from the Fair Lawn Civil Defense organization from the 1960s. Included are such items as a transcript of the "Loyalty Oath" that we all members had to sign before we could belong to CD, a list of "Important Security Posts" in town, a list of RACES operators in 1967, the Operating Manual Fred wrote for use at the former EOC (in the basement of the Municipal Building), which was later adopted as the basis for the County CD RACES operating manual, and a publication called, *The Civil Aide,* dated 1964.

Might make for an interesting "fox hunt" to find out what remains at each location.

Note: Use your magnification to get a better look at each site.



Fair Lawn Bomb Shelters 1964

Theoretics Demystified

This month it is time to get back to some basics. Recently at Wayne Electronics where I spend some time, there have been several customers who know little or nothing about electronics. So to that end here is a basic primer on what test equipment is basic and how to use it.

At the very least a multi-meter is needed to measure voltage, current, resistance and continuity. Voltage can be thought of as the pressure (as in water coming out of a faucet), current, measured as amperage, is analogous to the flow of water available as in the size of the hose delivering it. (Think garden hose versus that used by a fire company). Resistance is the electronic obstacles in the way, in a circuit, and serves the function to limit current flow for one reason or another. Lastly continuity is exactly as it sounds, the ability to tell if there is a continuous path for the current to flow in a circuit. (A lot of problems can be traced to open circuits due to poor solder joints, open circuit board traces, or defective components in a circuit!)

Voltage is measured by placing the meter probes, a common (usually black) and a red input probe across the two points of interest in a circuit, say a battery for instance, or a power supply. When doing this, set the meter on the highest voltage setting and then lower the setting till you see a sensible reading. Measuring current flow in amps or milliamps means that you must put the meter in series with the current path in question. The same proviso of starting with the highest selectable scale holds true as when testing voltages!

Some digital meters are 'auto ranging' and do this for you! Digital meters are available from give away, to very sophisticated. Analog meters are also available and give you the bonus of seeing voltage fluctuations or trends. When measuring voltage you will select AC which puts a rectifying circuit into play in the meter as the display usually only 'understands' DC voltages.

When measuring for unknown voltages or current in any circuit with more than 12 known volts, you must use the safety rule of keeping one hand away from the circuit being tested and to have your feet on a non conductive mat - especially if on a concrete floor or metal walkway, etc.! This will keep current from flowing through your body and causing cardiac arrest! This goes for any use of any test equipment in use on the bench or in the field.

Continued on next page.

In A Nutshell

It's that time again! What else but Valentine's Day! What does that have to do with ham radio?

Well everything. The greatest part of the hobby is the love of people! It's not the equipment, although important and necessary, not how many contacts you make or awards you get although achievement is a lofty goal, but the fact that it involves people. It is the fact that we can get together and talk and interact with each other, learn from each other, and just be together as a diverse community that makes the hobby fun and exciting!

Without all that, what you have is just a pile of stuff. It is the human factor that is important, that we can learn, build upon that learning and pass it on to future generations who will build upon it. So remember your Valentine, whoever that is, in person or across the miles by way of radio!

73, Fred
Wawra, W2ABE

Winter Field Day

Noel W2MSA runs stations at Position 4

Ed WX2R bagged Alaska on 20 meters SSB

Theoretics Demystified

When testing AC powered equipment, it is advisable to use an isolation transformer to 'lift' the item under test from earth ground! This will help to protect you and the equipment during testing. Another helpful thing is to get a special set of alligator clips that fit onto your test probes. This will enable you to run tests on equipment without having to hold the probes to the test points, even if just for the common probe if you need to move the input probe around.

Important! When doing continuity or resistance testing, power should be off [disconnected] to the equipment under test!

This covers basic multi-meter testing but there are many meters with frequency, transistor testing, and diode testing, and even light output testing. A cheap meter is ok for casual use but generally is of poor quality. A better choice is a good meter with decent probes and proper fusing. It is not unreasonable to spend more than $50 to $100 on a good meter that will last many years and be safe to use. You generally get what you pay for! Many meters are of the handheld portable type but the are many ac powered bench top meters available especially with bright LED displays. If you are going to buy a portable digital meter try to get one with a backlight for use in poorly lit areas, especially for field use.

No article would be complete without mentioning the venerable VTVM analog meters. These were plug in units that used a vacuum tube in their circuitry to raise the probe impedance to a high level, thereby lowering the meter's effect on the circuits being tested. Analog meters use a magnetic movement (a coil in a magnetic field- remember, a coil moving in a magnetic field produces current flow and conversely a current in a coil in a magnetic field produces movement) to move a needle which points to calibrated markings on a scale. This pointer arrangement is called a D'Arsonval movement - after the inventor of that movement - and is the basis of all analog movements. A small compass placed inside a coil of wire wherein a current is made to flow, will demonstrate the effect. See you at the Club!

73
Fred Wawra, W2ABE

Fun FLARC Fact

If FLARC were located in the UK, it would be the 10th oldest club in the country using RSGB statistics for 2019.

Where did Van W2DLT go to this week?

He went all the way to Hamcation in Florida
to say HI to Bill W2UDT !!

Missing out on emails from the club?

If you are not regularly getting info emails from FLARC, especially if you have given us your @arrl.net type email address, let Jim W2JC know your 'real' email address so he can remedy the situation.

We are now regularly getting rejections of all club emails that are sent to @arrl.net email addresses, and the ARRL says it is blocked by some mail handler server outside their system.

So we need your 'real' address to keep in touch.

February 2020 Meeting Notes

President Nomar NP4H called the meeting to order at 7:30 p.m. The members rose and recited the Pledge of Allegiance. Secretary Randy WU2S called the roll of officers and trustees and all were present. The meeting had a quorum to conduct club business.

Secretary Randy WU2S announced that the minutes from the January meeting were sent to all members of record and published in the club's newsletter, The Resonator, which is on the club's website at http://newsletters.FairLawnARC.org He asked the members present if there were any corrections or amendments needed. There were none so Skip KD2BRV moved to accept the minutes as published and Don N2PRT seconded the motion. The motion passed by acclamation.

Treasurer Al WA2OWL read this month's Treasurer's Report. Brian KD2KLN moved to accept the report as presented and Judith KC2LTM seconded the motion. The motion passed by acclamation.

Ed WX2R reported for the Publicity Committee that the Speaker series plans are now complete through September 2020. He announced that the results of the Member survey will be presented on February 21 at the Senior Center. He thanked the 114 FLARC members who responded to the survey.

Ed WX2R announced the schedule for the guest speaker series.

March 20 – Major Wayne Smith WB2ONZ, Deputy Commander of the Long Island Group Civil Air Patrol will speak about the Civil Air Patrol communications and their interaction with amateur radio.

April 17 – Rich Moseson W2VU. Editor of CQ magazine and Editorial Director of CQ Communications, Inc.

May 15 – Hal Kennedy N4GG will present "Spark at FLARC" via Skype video conference.

June 19 – Scott Weis KB2EAR and John Errington K2JE will talk about digital amateur radio.

July 17 – Neil Goldstein W2NDG will discuss Raspberry Pi computer applications

August 21 – Vintage Night at FLARC – see and operate antique amateur radio equipment

September 18 – Van W2DLT talks about his DXpedition to the Caribbean on the island of Antigua.

February 2020 Meeting Notes, cont.

Other dates that Ed WX2R asked members to keep in mind are:

April 18 – World Amateur Radio Day. This is not a contest but an opportunity to celebrate everything about ham radio. Last year FLARC was the only club station in North America to participate. Since this year's event is on a Saturday, we will likely host an open house for all visitors.

June 14 – Radburn Street Fair

October 18 – River Road Street Fair

Ed WX2R mentioned that he had another discussion with the president of the Sutton Cheam Radio Club (U.K.) and that he is trying to reach an agreement for a relationship with them by March. Ed noted that the next meeting of the Publicity Committee will be on March 13 at 6:00 pm. If you are interested in participating in the committee's work, please contact Ed.

Jim W2JC reported on improvement to the FLARC web site. There is now a scrolling banner which alerts you to upcoming events. Jim enhanced the event calendar to make it easier to maintain. He noted that the blog has information about upcoming DXpeditions from information supplied by the Frankford Radio Club. He said the members can receive automatic alerts about blog updates via email by subscribing at the top right of the blog page.

Jim W2JC reported that we are receiving 20 to 25 daily views of our blog. We have 256 Facebook followers and 72 followers on Twitter.

Jim W2JC informed members about our QSL activities. He mentioned that Fred W2AAB made a contact with Cocos Island last night, which is a new country for W2NPT. Jim said he received paper QSL cards from Malta and South Africa from contacts made in 2009. Jim presented the club with the framed DXCC Award. We are now working to obtain our endorsement for 150 countries. President Nomar NP4H received the award and thanked Jim W2JC, Fred W2AAB, George W3EH, Larry WA2ALY and all who contributed to the effort to contact DX countries. The members present applauded the award presentation.

Ed WX2R reported for Thom W2NZ on the FLARC YouTube channel. We received 3,641 views in the last 90 days. We now have 379 subscribers after gaining another 28 in the past three months.

Continued on next page.

February 2020 Meeting Notes, cont.

Brad KM2C reported for the Technical Committee. He conducted three classes on configuring and operating the Flex radios. He will resume these classes in March. Nomar NP4H asked him to consider doing a class that starts with taking a new Flex radio out of the box and completing the initial setup. Brad mentioned that he is designing a connector console for the radios so all connections will be accessible from the front. Brad noted that there are now forms at each operating position for members to use to report any technical issues at the club. Jim W2JC produced the forms. Members were asked to give completed forms to any club officer.

Vice President John W2JLH reported on our Winter Field Day event. John noted that there were weather issues and expressed disappointment that members did not respond as expected to requests for participation. John said that preparations for the June Field Day event will include more structured efforts to make sure all the necessary tasks are accomplished. John said that he will organize the primary staff and their assistants for the major task groups. Nomar reminded members that we want Field Day to be a group activity where all can learn from experienced people.

Vice President John W2JLH announced that he received a lot of feedback on the proposed Bylaws amendment. After considerable discussion with the Council and the members it was decided that self-policing conversations in the club is preferable to an amendment.

Ed WX2R reported that as many as 9 or 10 people are showing up on Tuesday evenings to operate the club stations or work on projects. Ed agreed to continue opening the club on Tuesdays starting at 6:30 p.m. through April or May. George W2EH also is available to open the club.
President Nomar NP4H announced a member suggestion that FLARC consider bundling outgoing DX QSL cards as a club service to members. A lively discussion ensued with comments and suggestions by Ed WX2R, Larry WA2ALY, Fred W2AAB, Jim W2JC and others. Ed WX2R moved that the club spend up to $100 annually to process outgoing DX QSL cards on behalf of FLARC members. David KD2MOB seconded the motion. The motion passed by acclamation. John W2JLH said that he will organize a process for receiving, sorting and sending the cards. Nomar NP4H and Judith KC2LTM volunteered to assist.

President Nomar NP4H noted that several other projects are in progress or are planned. The event with high schools in Teaneck, Pascack Valley and Puerto Rico does not yet have a definite date. He said we have planned projects for the Spring in better weather to clean up some coax cables and install new Ethernet. We are also looking at ways to get better Internet services.

February 2020 Meeting Notes, cont.

Don N2PRT asked if we could use an amplifier when using SSB to contact DX stations. Don said that he noticed many times when distant stations did not hear W2NPT very well. Brad KM2C responded that we have a 600-watt amplifier that could be used for that purpose. Brad said that the improvement with higher power may not be as much as expected in many cases. Brad agreed to furnish training of the proper and safe use of the amplifier.

Larry WA2ALY announced that he will give a short talk on his construction of a ground radial system for his vertical antenna on Friday February 14.

Fred W2AAB asked if the Field Day checklist was started and John W2JLH responded that the checklist is in progress.

Ed WX2R reminded members that the annual Great Falls Earth Day event is on Wednesday April 22. John W2JLH said that he will send a volunteer request for this event.
David KD2MOB thanked the club for allowing the Fair Lawn ARES group to use the W2NPT repeater for weekly nets. David said that an ARES meeting will take place following the FLARC business meeting.

President Nomar NP4H announced that Fred W2AAB will give a short talk on 160-meter operations on Friday February 28.

Having no further business, President Nomar NP4H asked for a motion to adjourn. Judith KC2LTM so moved and Lee KD2DRS seconded the motion. The members present voted in favor and the meeting was adjourned at 8:30 p.m.

Respectfully submitted,

Randy WU2S, Secretary

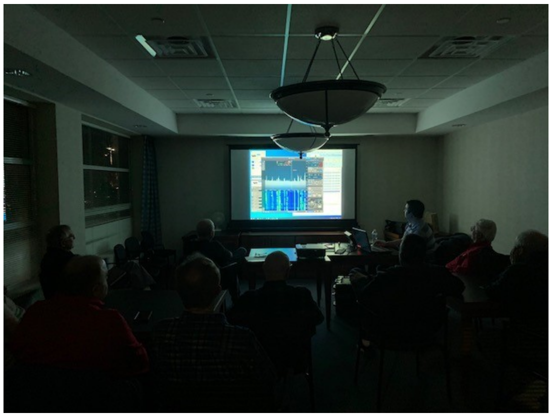
**2020 Dues
are due !**

FLARC: A Night In The Life

Just a typical scene at the clubhouse on Friday, January 24. Over 40 members in attendance and activities everywhere. What a great club!!

An active test bench and Position 4 at work

A lively discussion on antennas in the coffee room



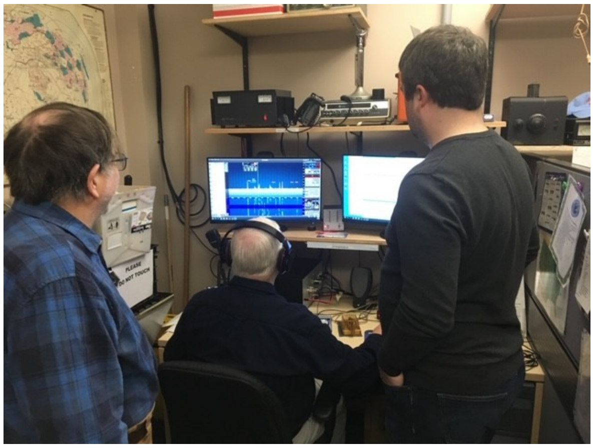
Brad K2MC leads a discussion on Flex and SDR in the card room

2020 Winter Field Day

What started outdoors ended up indoors, but with no less enthusiasm for our third year of participation.

A thanks to all who participated: Noel W2MSA, Nomar NP4H, Glenn KB2MDR, Kevin K2KCC, Van W2DLT, Kevin KD2QWQ, George W3EH, Karl W2KBF, Jim W2JC, Brad KM2C, Robert KC2ORX, Fred W2AAB, Brian KD2KLN, Dave KD2MOB, Dave N2AAM, Ros KD2GKA, Don N2PRT, Jim W2KNG, John W2JLH, Andrew KC2G, Thom W2NZ, Dave KD2JIPand Ed WX2R. Lots of operators… fantastic!!

Noel W2MSA at Position 2



John and Brad K2MC follow Fred W2AAB's CW progress at Position 2.

Fair Lawn RACES/ARES Corner (Continued)

ARES, through the ARRL, is undergoing a 21st century makeover - the timing can't be any better. Please see the ARRL-ARES article linked below.

New ARES plan aligns ARES with the needs of Served Agencies:
http://www.arrl.org/news/new-plan-aligns-ares-with-the-needs-of-served-agencies

Please sign up for various nets and activities taking place at the following email address:

https://arrl.volunteerhub.com/lp/nnj

Now, getting back to FL-RACES:

Our next FL-RACES KB2FLR net will take place on Wednesday, February 12th at 1920 hours. The Fair Lawn ARC Repeater is used (RX 145.47 MHz / TX 144.87, PL TX Tone 167.9 Hz). Thank you to the Fair Lawn Amateur Radio Club for permitting FL-RACES for using the repeater.

FL-RACES is part of several RACES groups which operate within Bergen County and from time to time has training opportunities with Bergen County RACES.

The volunteer efforts of our members are very much appreciated.

Our monthly meetings usually take place right after the FLARC business meeting. Please join us for the next FL-RACES meeting.

If you are interested in joining the Fair Lawn RACES, please contact me. Anyone who's a licensed amateur radio operator may join Fair Lawn RACES and there's no residential requirement.

For information regarding Bergen County RACES, please go to http://www.bcnjraces.org.

Thank you very much. 73.

David KD2MOB

Ed-itorial: A Reality Check In Florida

I spent the holidays and part of January outside of West Palm Beach with both family and at an AirBnB. While at the latter I put up a small station using an Icom 7300 and a Buddistick working CW only on 20 meters.

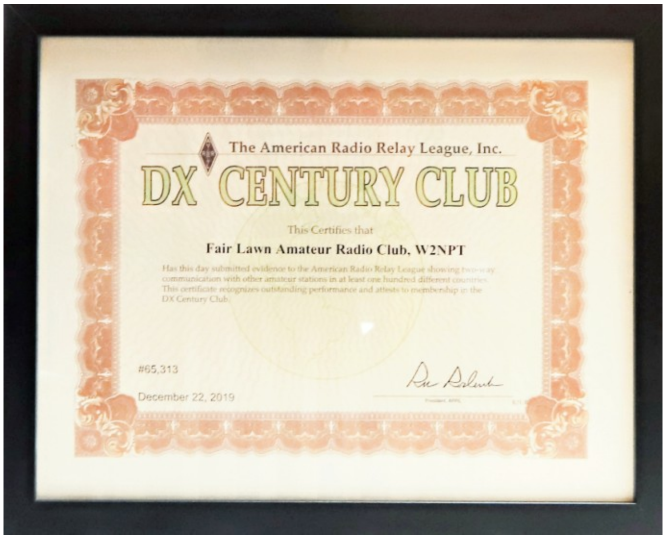
While generally pleased with my logbook (about 80 QSO's) I was not happy with my operating performance. Having done lots of FT8 recently at the expense of CW, my code skills were rather rusty in conversational CW to say the least. It's frustrating when you think you can hear and send and then actually have to do it.

My note to self — keep practicing CW and try to get on the air every day with it (a resolution for sure!). CW is not everyone's taste but it has been mine so it was a lesson well learned.

Other random notes regarding CW were the abundance of good high speed ops (no doubt retired like me) on the lower part of the band every day and the dearth of "newbies" attempting CW at the upper part of 20m.

Good fun and I've committed to bringing the same (or better) setup down at the end of the year. I'll share my AirbnB experience at one of our learning sessions.

73
DE Ed WX2R



The American Radio Relay League, Inc.

DX CENTURY CLUB

This Certifies that

Fair Lawn Amateur Radio Club, W2NPT

Has this day submitted evidence to the American Radio Relay League showing two-way communication with other amateur stations in at least one hundred different countries. This certificate recognizes outstanding performance and attests to membership in the DX Century Club.

#65,313

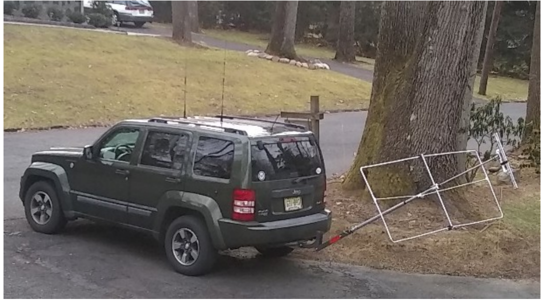
December 22, 2019

President, ARRL

Roving the JAN 2020 ARRL VHF Contest in the Snow
By Robert Holstrom, KD2BKD, 01/20/2020

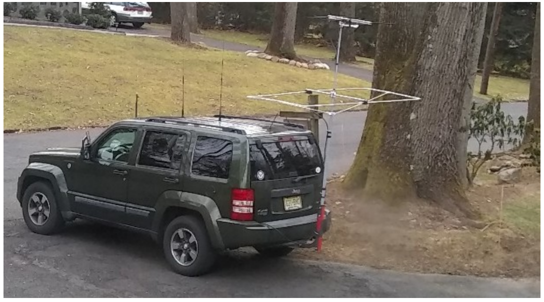
I started getting my rover setup after dusk on the cold Friday night. All I did was put on my hitch receiver mast and that was enough because of the cold temperature until the next day. I like that the VHF contests start at 2:00pm our time, as it gives me all Saturday morning to set up the rover. As you can see below the snow had not started. I have 6m, 2m, & 440 with FM & USB.

Saturday setting up KD2BKD/Rover



No need for a ladder as the mast tilts

KD2BKD/Rover ready to go



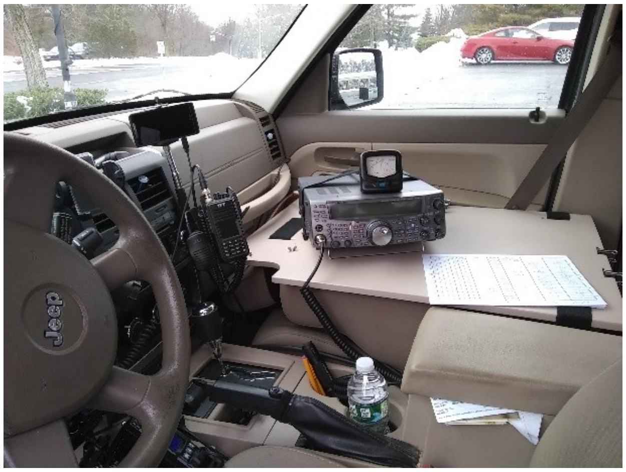
6m Moxon & Elk 2M/440L5 antennas on back

After lunch I left at about 1:00pm with the snow just starting to fall. My first stop was Garret Mountain Reservation for grid square FN20. I went slowly and took back roads. Getting there just before 2:00pm, I noticed signs stating the park was closed with gates across. This was at both entrances. On my way, I had found an empty parking lot of a bank, overlooking route 80. I set up there, which basically is just to park, and used the radio. There was no need to get out of the car. The two rear antennas are directional pointing forward, so to change antenna directions I just turn the Jeep! From this location I was able to make 14 contacts to the 4 local grid squares in one hour.

Parking lot of bank on Garrett Mt.

On the roof are 2m & 440 antennas for FM
On the hood is 6m vertical antenna for FM

View from driver's seat



1 cell phone for APRS & other for grid square
Notice the paper log

Next location was State Line Lookout for FN30. This is my typical route for VHF roving. This took about 45 minutes to travel because of the weather. State Line was open with a few cars in the lot. I did not get out to take any pictures here. I worked 18 contacts. I only got 3 of the 4 local grid squares from here, because the rangers closed the park at dusk. But I did get FN41 as a 4th grid – which is in North Eastern Connecticut on 6m. That is about 110 miles.

Since the weather was getting worse, I was not going to try to get to the top of Mount Nebo, Clausland Mountain (Nike Overlook Park) in Orangeburg, FN31. I did stop at a hill top FN31 spot in Orangeburg to work 2 FM contacts (6m & 2m). I then crossing into FN21 and stopped again on a hill for the FM contact but could only get 6m. That was it for Saturday because of the weather.

Sunday the weather was much better with all the plows doing their work overnight to clear the streets. I typically go to Tice Corner for FN21 but heard of another better location at the corner of McArthur Blvd and Ridge Road in Mahwah. At this new FN21 spot, I had 12 contacts and completed the 4 local grids.

Mahwah - FN21

Nike Park – FN31

I had a bit of time to go back to do FN31 for more contacts, so off to the Nike Park I went. At Nike I noticed it was the best low noise location of them all. I heard a lot of activity. At Nike I received 15 contacts with the 4 local grid square plus a bonus grid of FN29 in Southern New Jersey on 2m, at about 80 miles.

So according to my calculations my contacts worked score was 77.

The multiplier works out to:

4 grids I worked from FN20
+4 grids I worked from FN30
+4 grids I worked from FN21
+5 grids I worked from FN31
+4 for the grids I worked from
___
21

77 X 21 = 1617 points total

Dues Are Due

It's that time of the year again as dues for 2020 are now being received by our Treasurer, Al WA2OWL.

It's always good to get your dues in early and save the task of chasing you down after New Year's. And they remain at the same level as they have for many years while the club has grown in size and activities.

This year we renewed over 85% of our 2018 members; quite a feat with a base membership number of around 145.

The FLARC member count closed 2019 at 167.

Thanks to you, this is the best club around and you vote your satisfaction with the club by getting your dues in and done for. Al can explain other dues levels beyond basic renewal.

Dues are the lifeblood of the club. An ad earlier in the newsletter points out what's been done this year to earn your renewal. So renew now while you're thinking it and give FLARC a great start into 2020!!

At Deadline:

As of January 24, we have now renewed 100 + members… and on course to match or exceed the record level of 2019. Don't put it off—renew NOW while you're thinking about it.

FLARC "Year of Learning"

February 14th	Do antennas really need radials?	Larry WA2ALY
February 28th	Operating on 160 meters	Fred W2AAB
To be decided	Logging and QSL Bureaus	Jim W2JC
To be decided	How many ways do hams use CW ?	Fred W2AAB

Member Survey Results Released On February 21st

A record number 113 members have completed this year's edition of the member survey and the results will be presented and discussed by Ed WX2R at the **Senior Center** at 7PM.

It's not Valentine's Day but we'd love to have you attend this important meeting.

Second January VE Test Session Held

Due to demand, a second VE test session was held on Monday January 27th to accommodate three applicants.

Congrats to Mike KD2TIC for earning his General license at the session!!